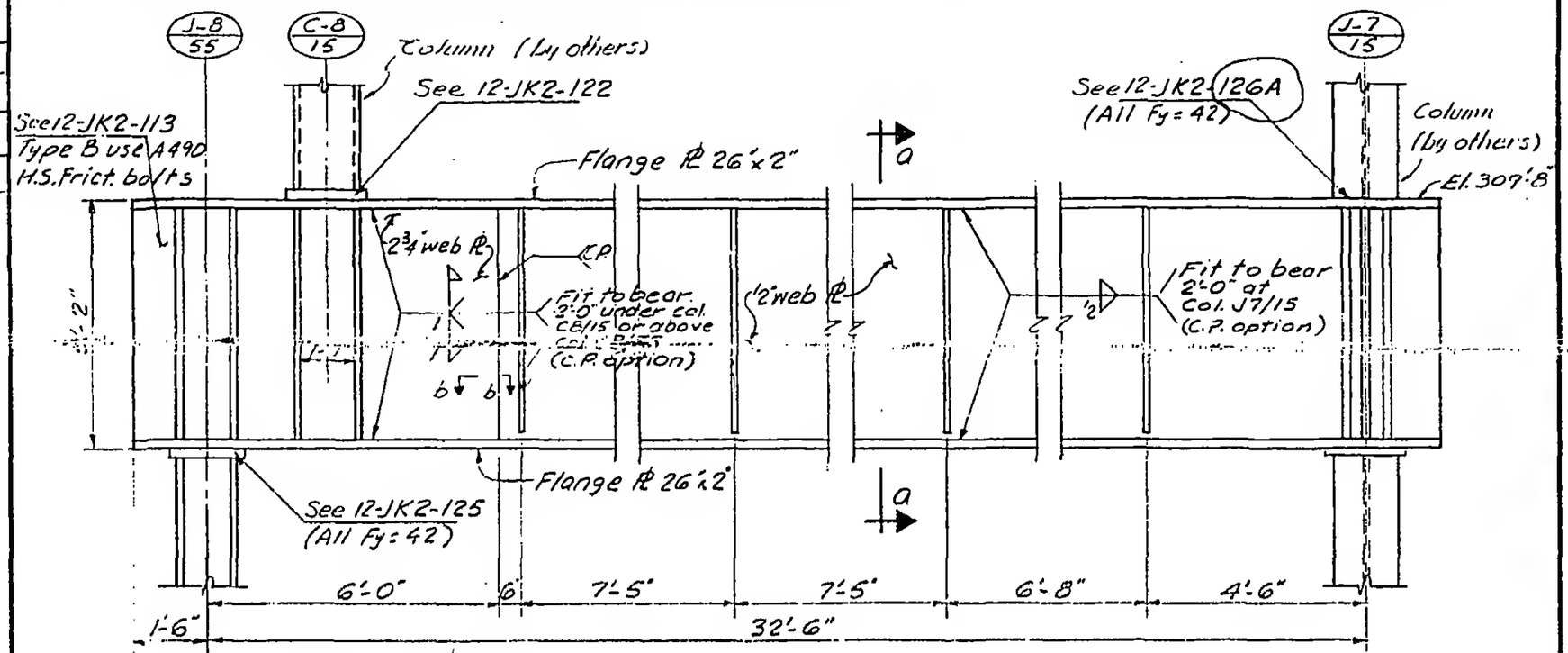
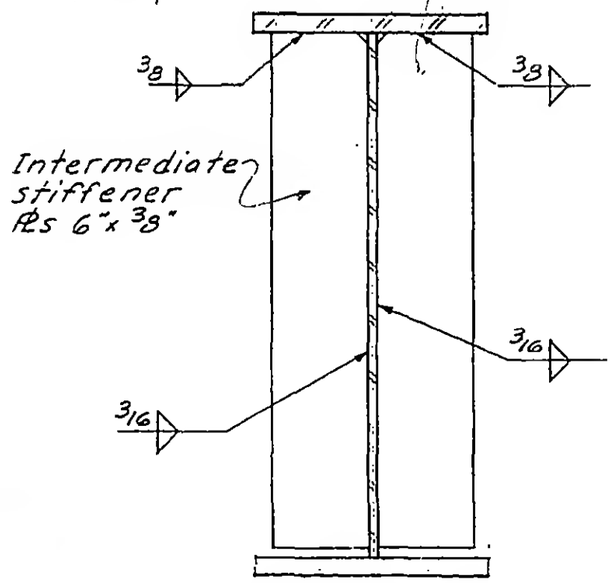
SKILLING - HELLE - CHRISTIANSEN - ROBERTSON Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE PLATE GIRDER J4D | DATE 5-1-68

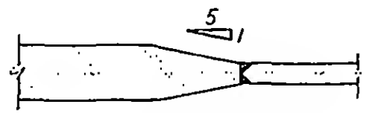
REVISIONS
7-19-68
12-3-68
1-8-69
1-20-69





Section a-a

Note:
1. All material with Fy=42 except as noted.



Section b-b

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DRAWN A.F.
REVIEWED E.L.

12-JK2-105

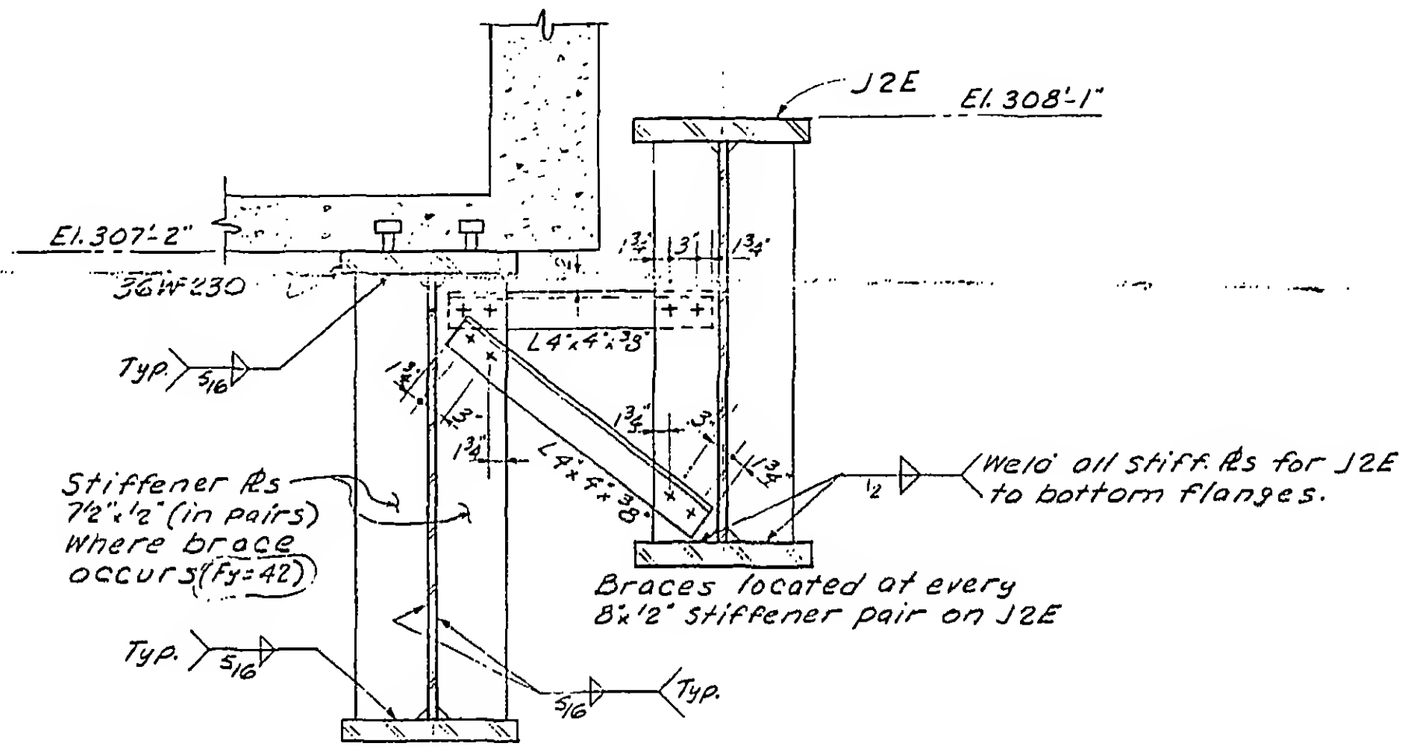
1042-L,3

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PROJECT THE WORLD TRADE CENTER | TITLE GIRDER BRACING DETAILS | DATE 5-1-68

REVISIONS

7-19-68



Note:
1. Bolts are 1"ϕ A325 H.S. friction type connections.

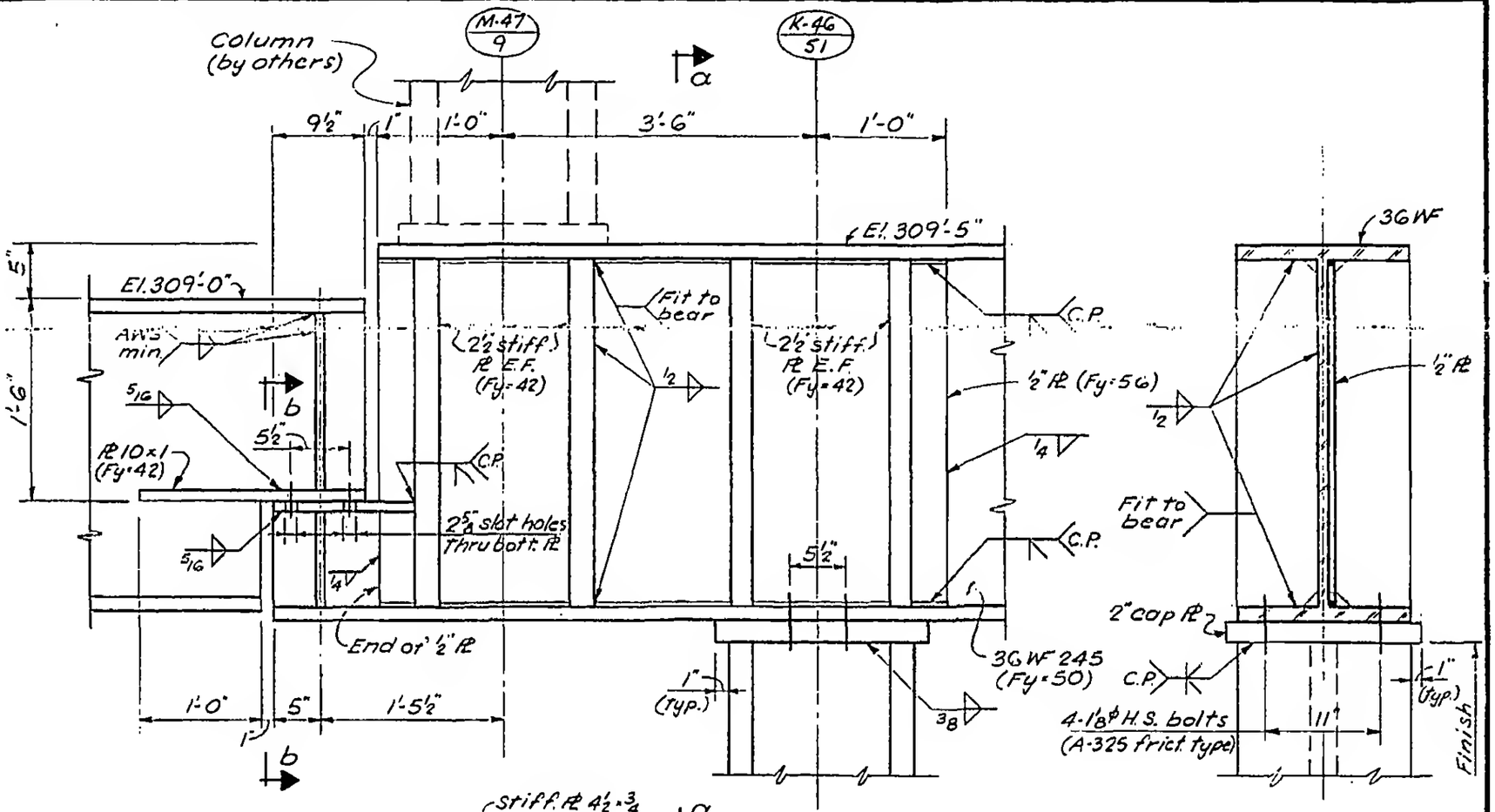
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No. 34360
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12-JK2-106

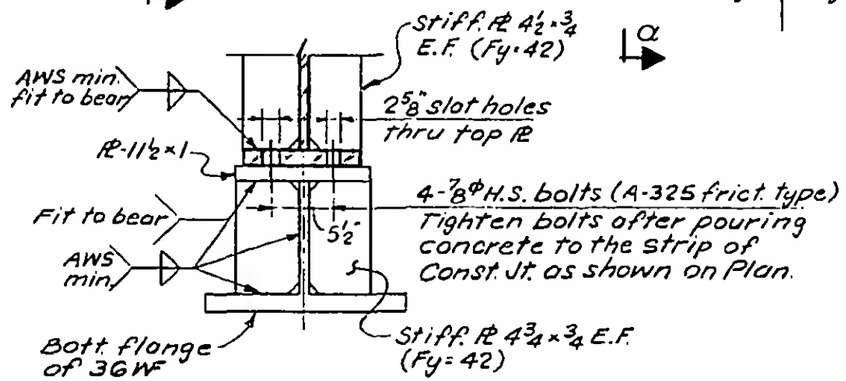
SKILLING, HELLE, CHRISTIANSEN, ROBERTSON — Structural & Civil Engineers

PROJECT: THE WORLD TRADE CENTER | TITLE: GIRDER DETAILS | DATE: 4-30-69

REVISIONS



Section a-a



Section b-b

Notes:

1. All welds to be E70xx.
2. Provide washers 2½ × ⅝ (sq. or round) with Fy=50 ksi for all bolts over slot holes.

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DRAWN S.C.

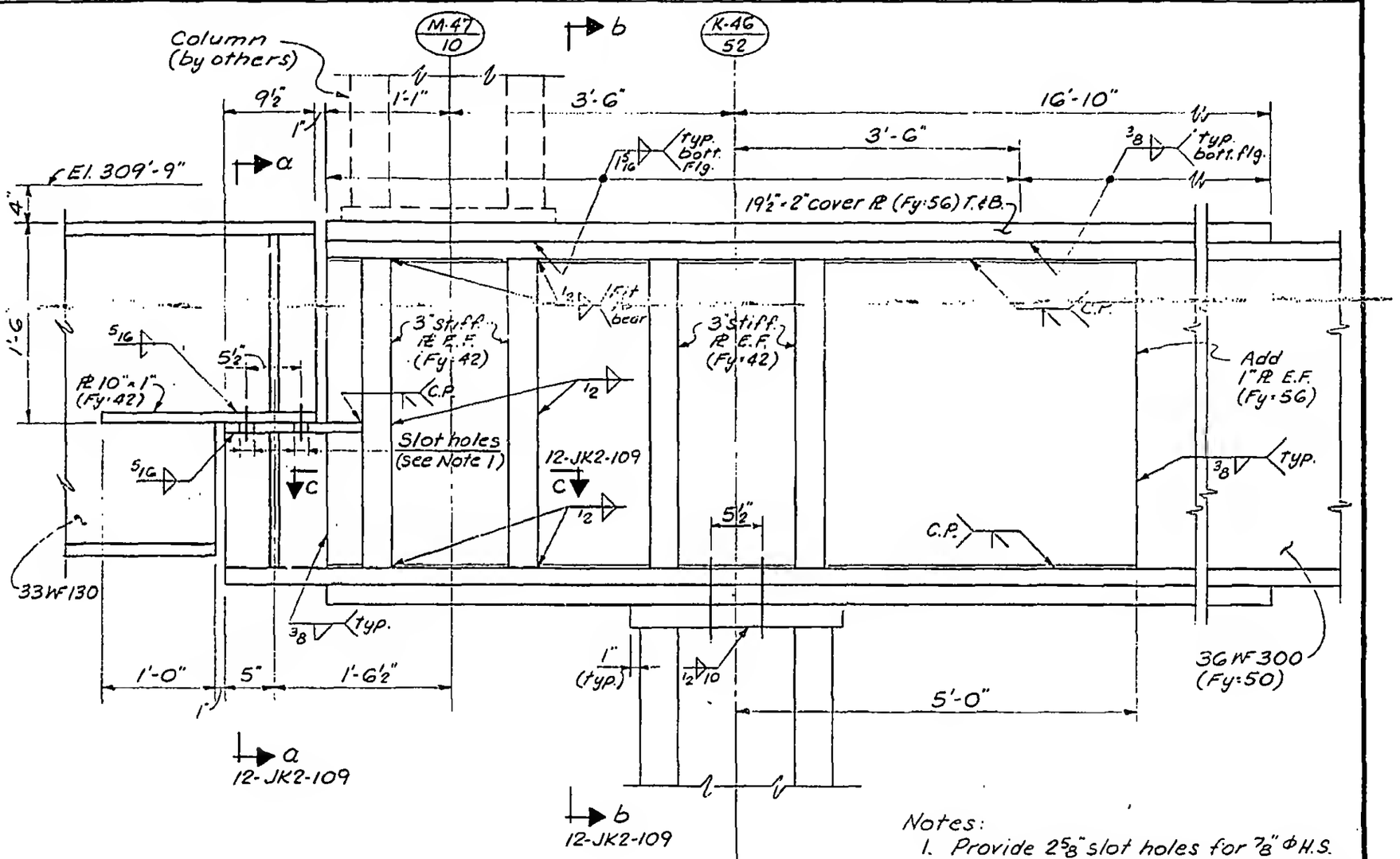
REVIEWED E.L.

12-JK2-107

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PROJECT: THE WORLD TRADE CENTER | TITLE: GIRDER DETAILS | DATE: 4-30-69

REVISIONS



Notes:

1. Provide 2 5/8" slot holes for 7/8" ϕ H.S. bolts (A-325 friction type) as shown. Tighten bolts after pouring concrete to the strip of const jt. as shown on Plan.
2. All welds to be E70xx.
3. Provide washers 2½ x 5/8 (sq. or round) with Fy-50 ksi for all bolts over slot holes.

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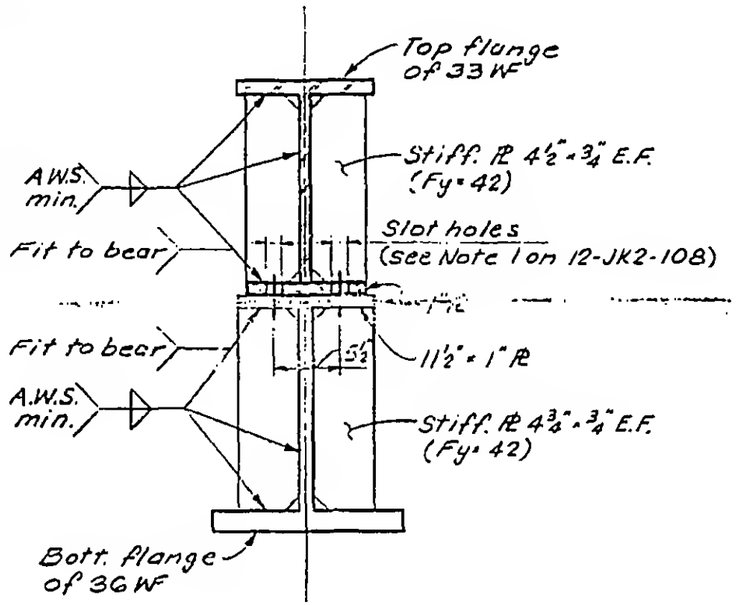
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12-JK2-108

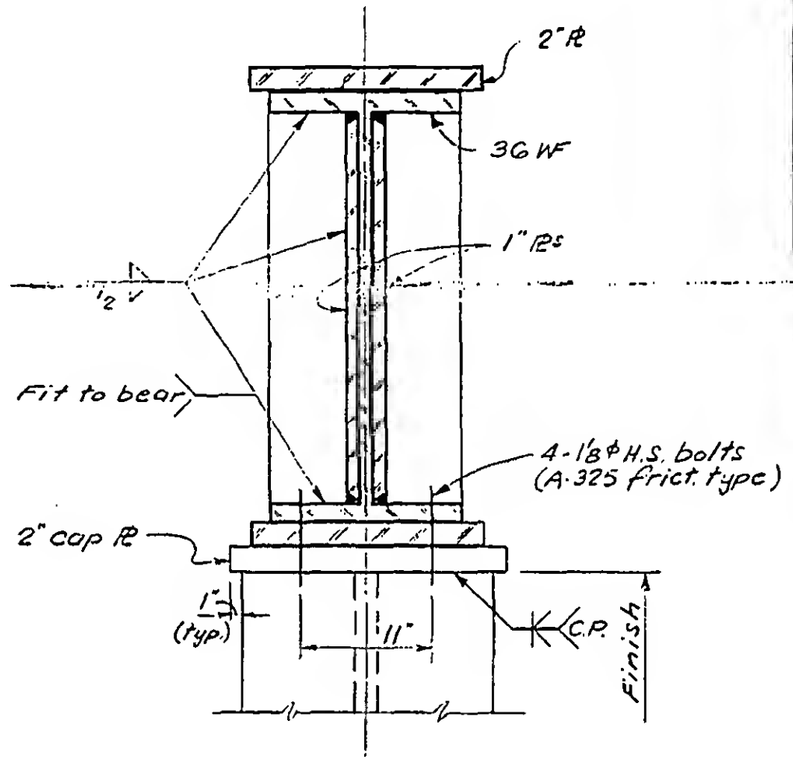
SKILLING, HELLE, CHRISTIANSEN, ROBERTSON — Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE GIRDER DETAILS | DATE 4-30-69

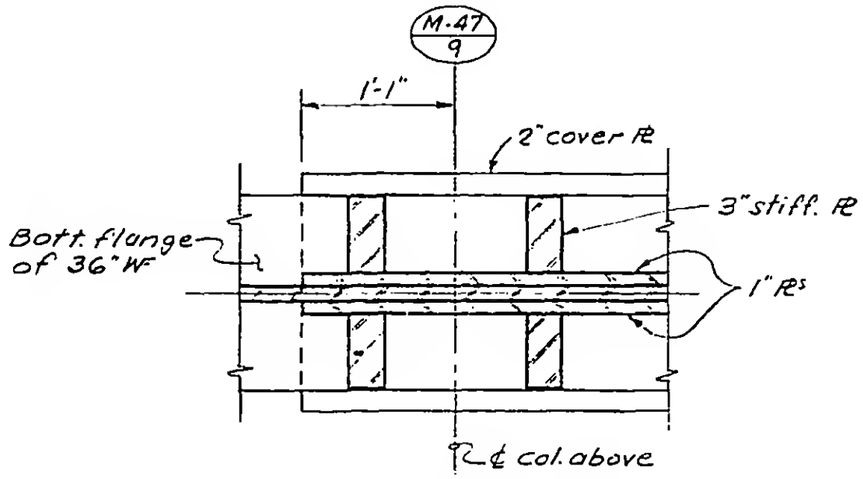
REVISIONS



Section a-a



Section b-b



Section c-c

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REVIEWED E.L.

12-JK2-109

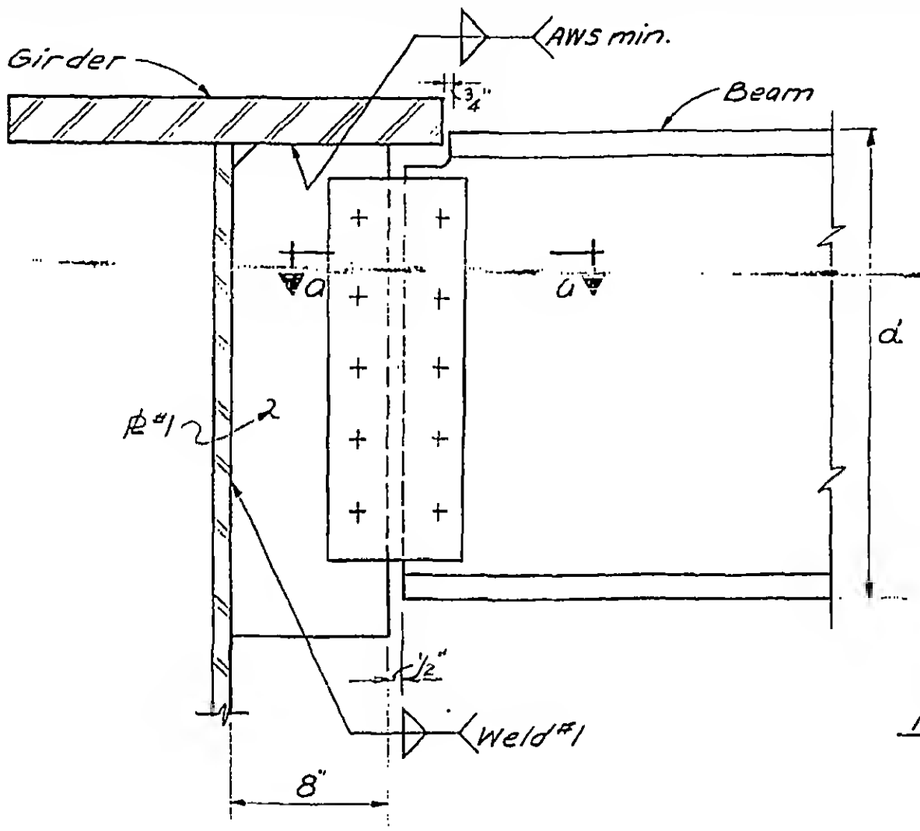
SKILLING - HELLE - CHRISTIANSEN - ROBERTSON Structural & Civil Enginoors

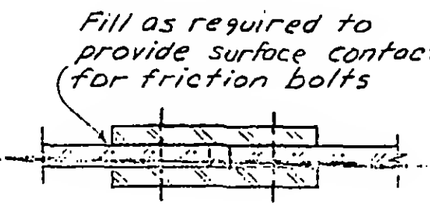
PROJECT THE WORLD TRADE CENTER | TITLE TYPICAL BEAM TO GIRDER CONNECTION | DATE 5-1-68

REVISIONS

7-19-68

NO STIFFENER AT CONNECTION





Section a-a

NOTES:

1. Use H.S. friction bolts, A325 (A490 for all connections at El. 310 within Zone J-2 & J-4 areas.)
2. Size and number of bolts, shear plate thickness and Weld #1 to be determined by beam reaction. See plans for beam reaction.
3. Forces at the connection are a vertical reaction from the beam (R), and a horizontal force equal to $\frac{16}{d''}$ (R).

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12-JK2-111

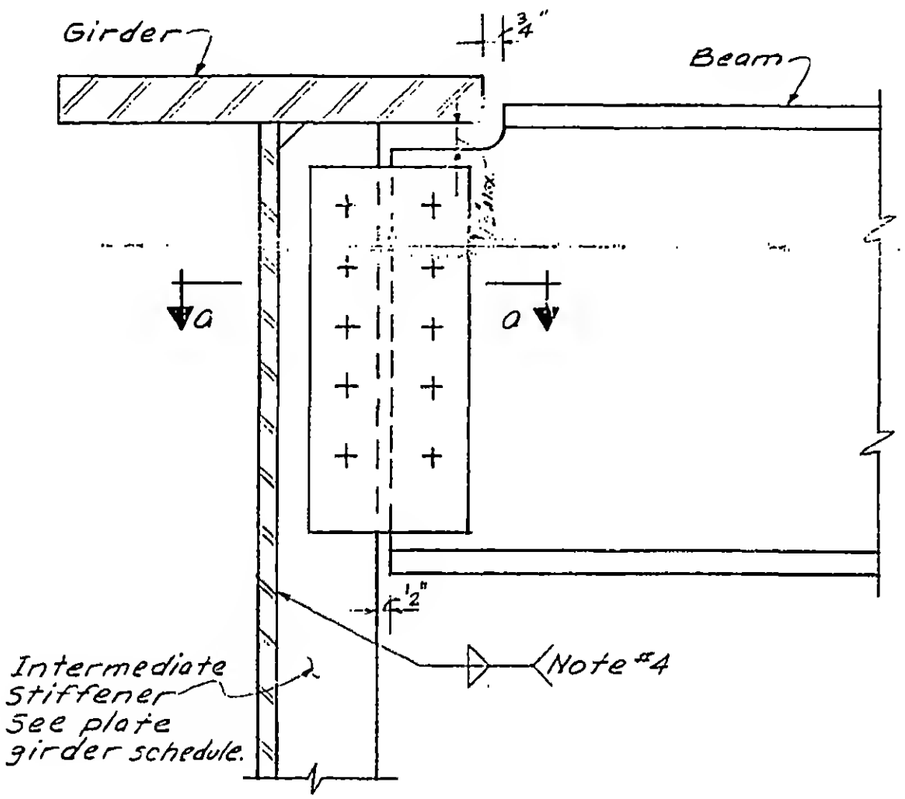
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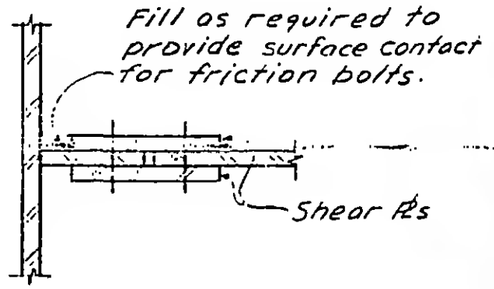
PROJECT THE WORLD TRADE CENTER | TITLE TYPICAL BEAM TO GIRDER CONNECTION | DATE 5-1-68

REVISIONS

7-19-68

CONNECTION AT STIFFENER





Section a-a

NOTES:

1. Use H.S. friction bolts. A325 (A490 bolts for all connections at El. 310 within Zone J-2 & J-4 areas)
2. Size and number of bolts and shear plate thickness to be determined by beam reaction. See plans for beam reaction.
3. Stiffener width and/or thickness may be increased above that shown in the schedule when necessary to improve beam connection.
4. Increase fillet weld above AWS min. when required by beam reaction.

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12-JK2-112

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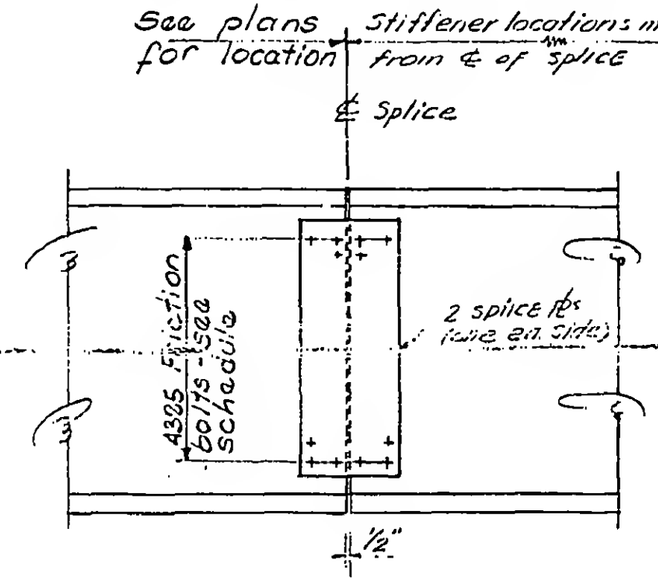
PROJECT THE WORLD TRADE CENTER | TITLE GIRDER CONNECTION DETAIL | DATE 5-1-68

REVISIONS

6-7-68

7-19-68

See plans for location — Stiffener locations measured from ℄ of splice



SCHEDULE		
Type	Total No. of Bolts	Splice Plate Thickness
A	24 - 1 1/8" ø	3/8"
B	36 - 1" ø	1/2"
C	78 - 1 1/8" ø	1 3/16"
D	56 - 1" ø	5/8"
E	44 - 1" ø	5/8"
F	48 - 1" ø	5/8"
G	40 - 1" ø	1/2"
H	52 - 1" ø	9/16"
J	72 - 1 1/8" ø	7/8"
K	12 - 3/4" ø	1/4"
L	20 - 1" ø	3/8"
M	48 - 1 1/8" ø	1/2"

Notes:

1. Splice plates are Fy 42.
2. If joining webs are unequal in thickness fill plates are required. Insure surface contact for friction bolts.

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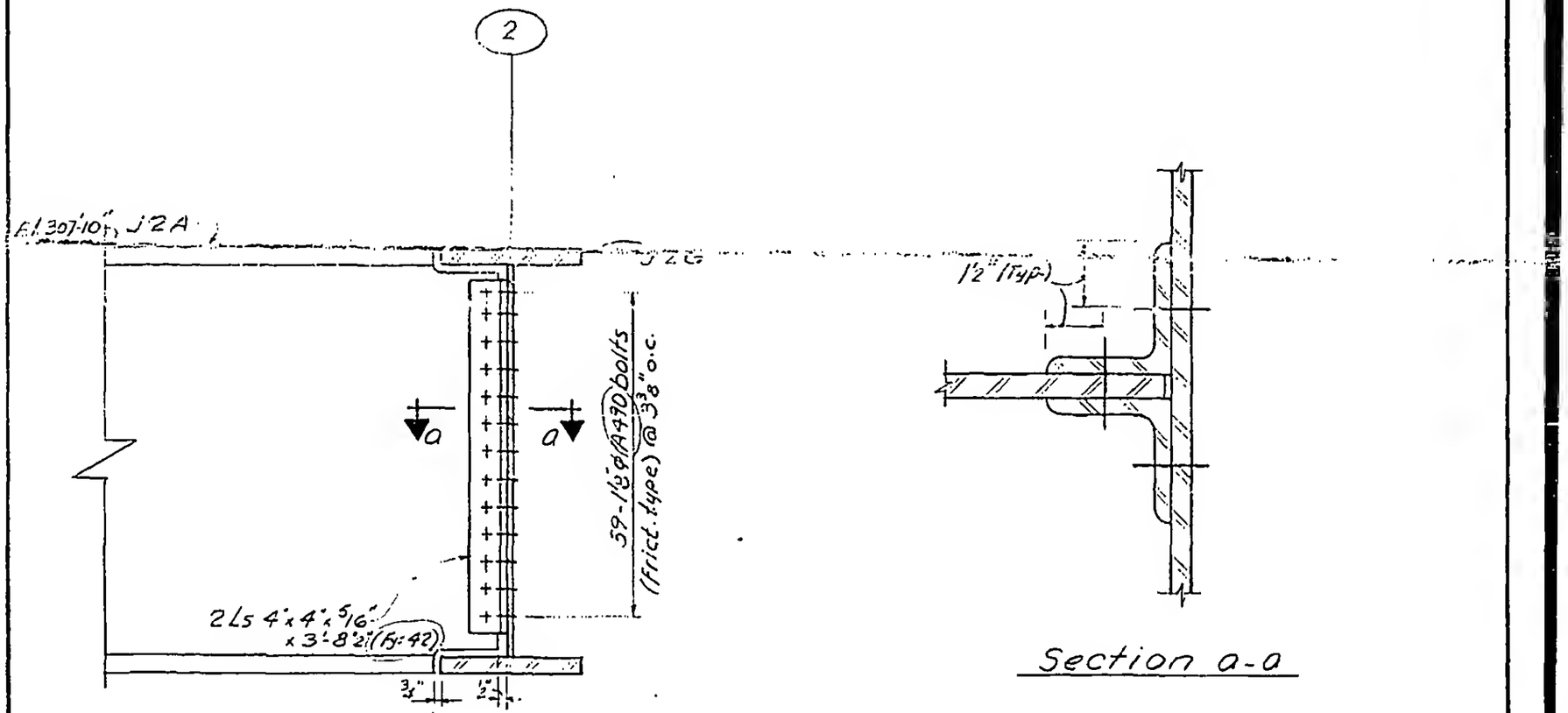
12-JK2-113

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PROJECT THE WORLD TRADE CENTER | TITLE GIRDER CONNECTION DETAIL | DATE 5-1-68

REVISIONS

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Section a-a

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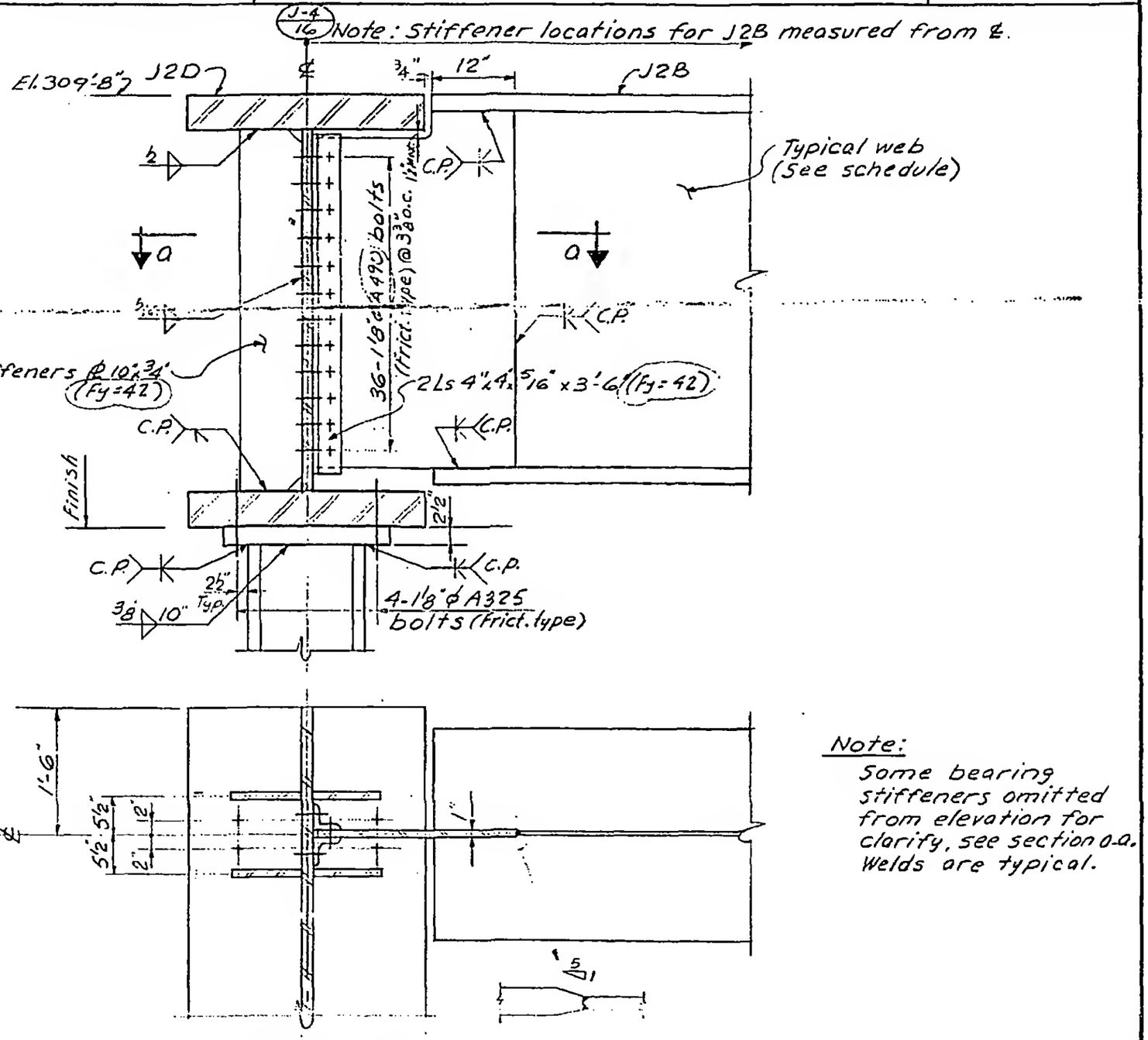
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PROJECT THE WORLD TRADE CENTER | TITLE GIRDER CONNECTION DETAIL | DATE 5-1-68

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Section a-a

Note:
Some bearing stiffeners omitted from elevation for clarity, see section a-a. Welds are typical.

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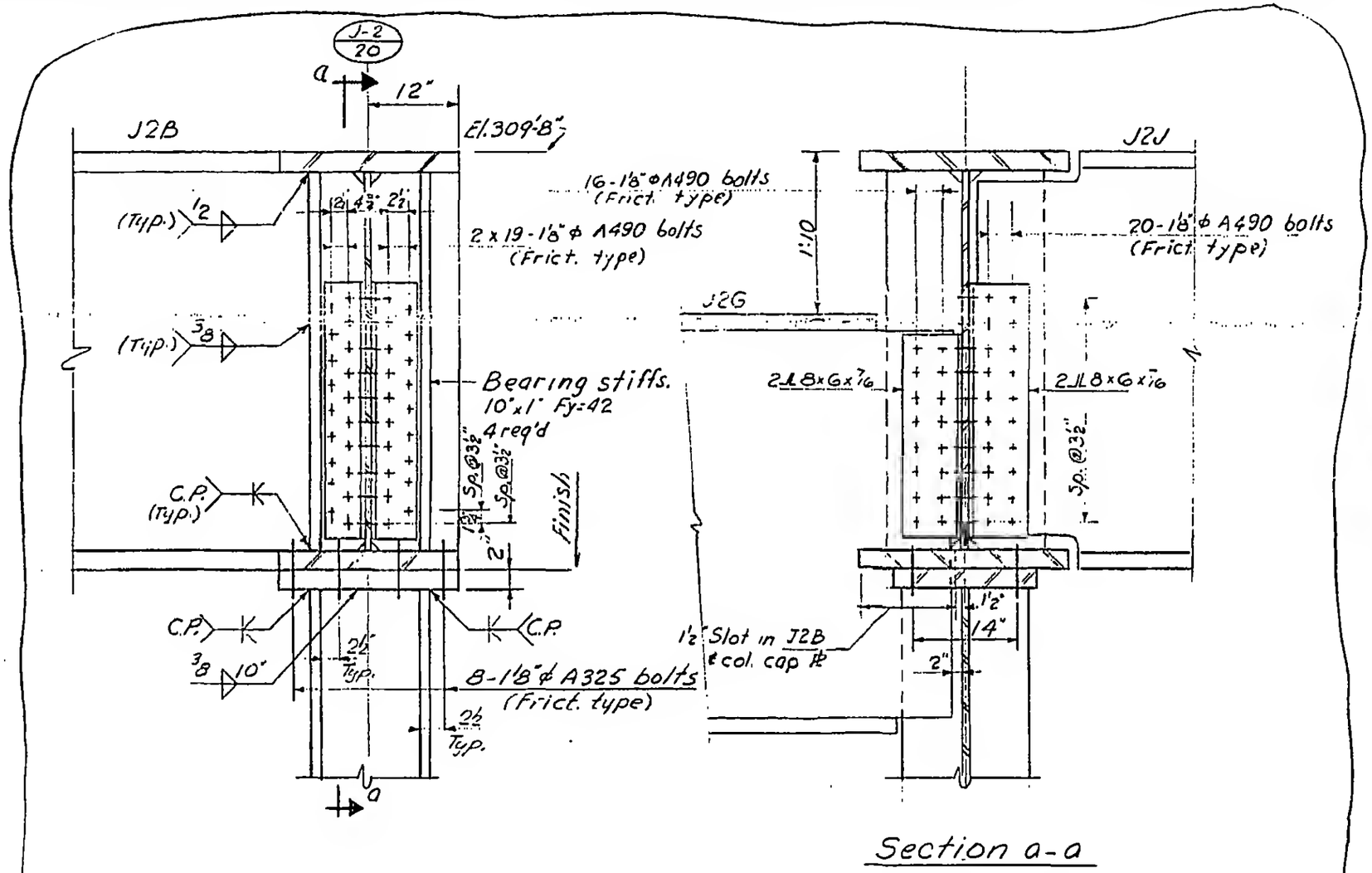
SKILLING - HELLE - CHRISTIANSEN - ROBERTSON Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE GIRDER CONNECTION DETAIL | DATE 5-1-68

REVISIONS

7-19-68

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Section a-a

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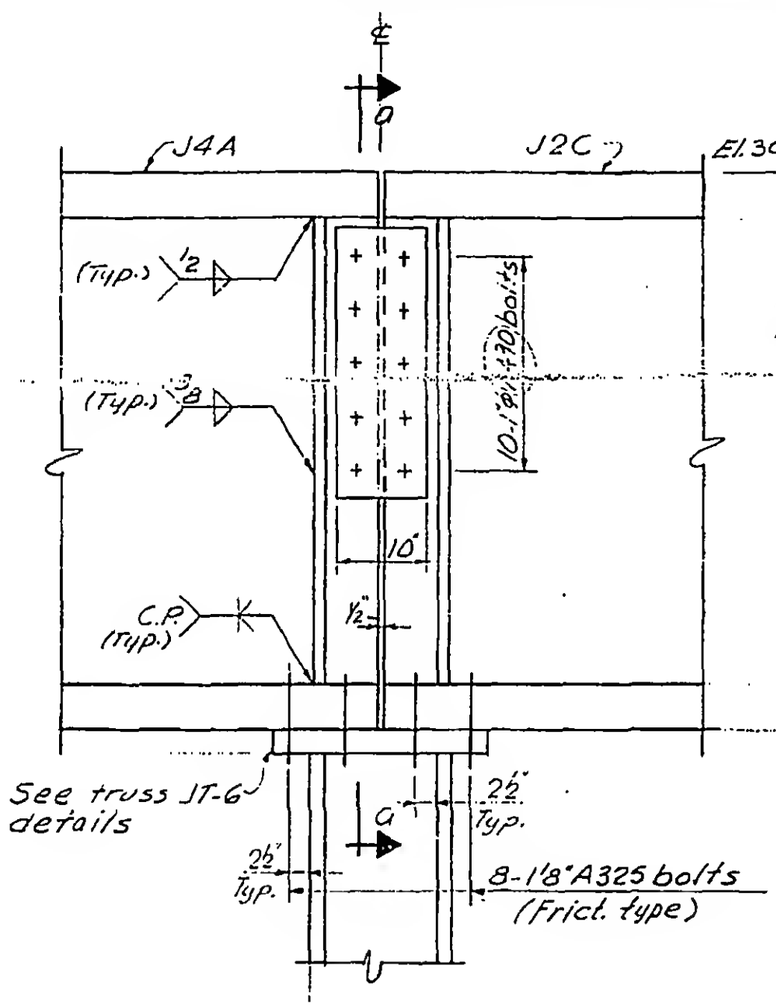
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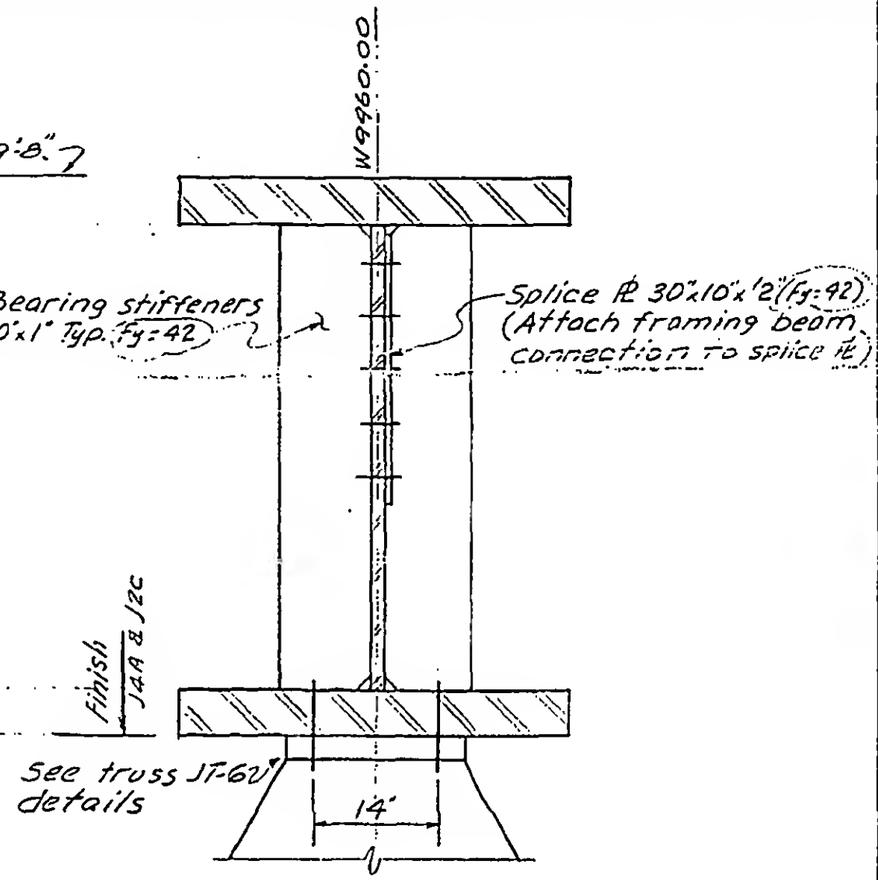
SKILLING - HELLE - CHRISTIANSEN - ROBERTSON Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE GIRDER CONNECTION DETAILS | DATE 5-1-68

REVISIONS

7-19-68





Section a-a

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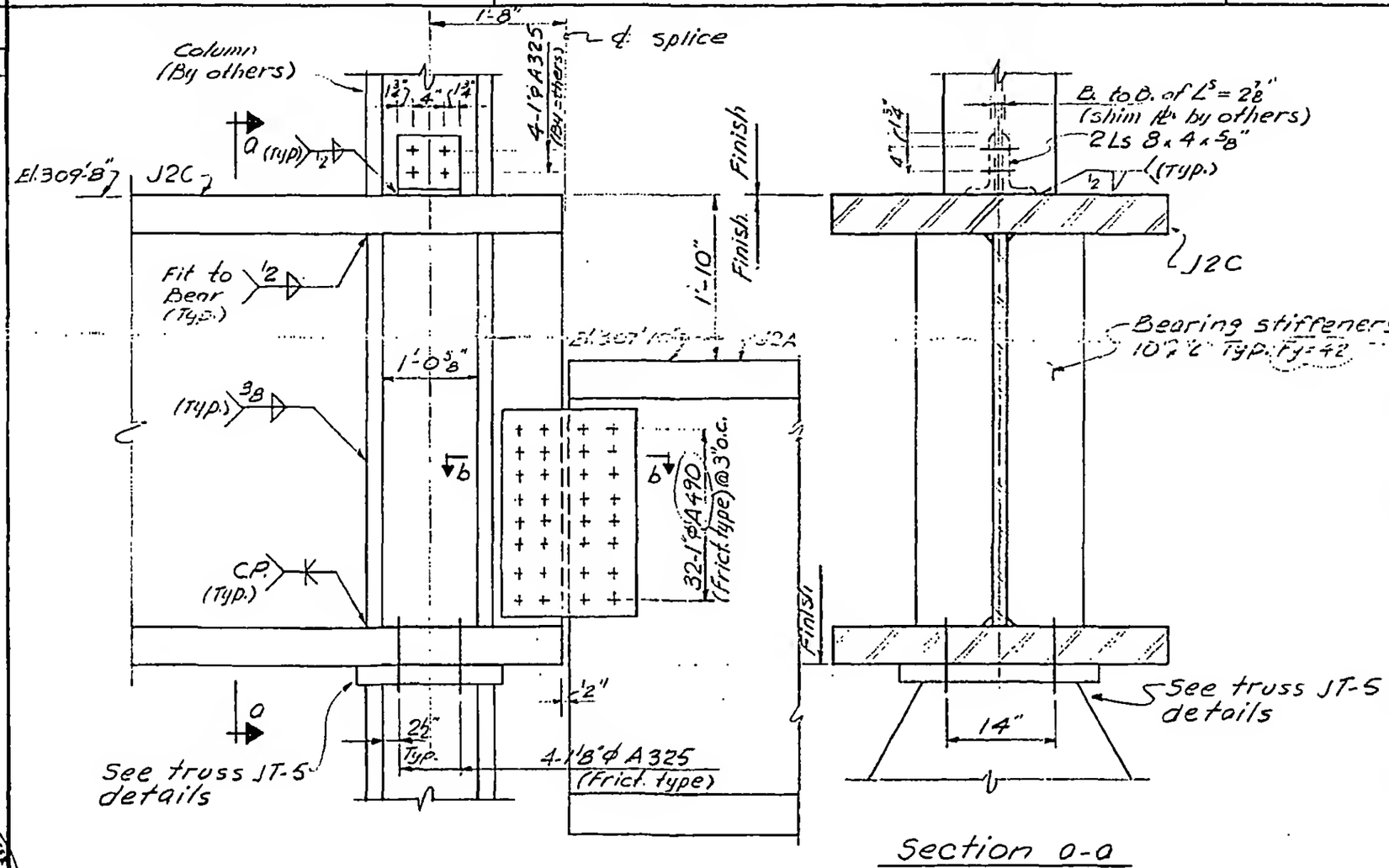
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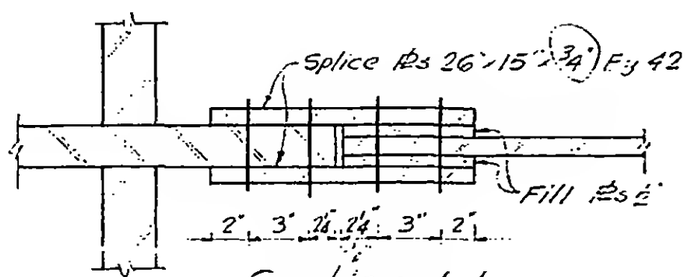
PROJECT THE WORLD TRADE CENTER | TITLE GIRDER CONNECTION DETAILS | DATE 5-1-68

REVISIONS

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Section a-a



Section b-b

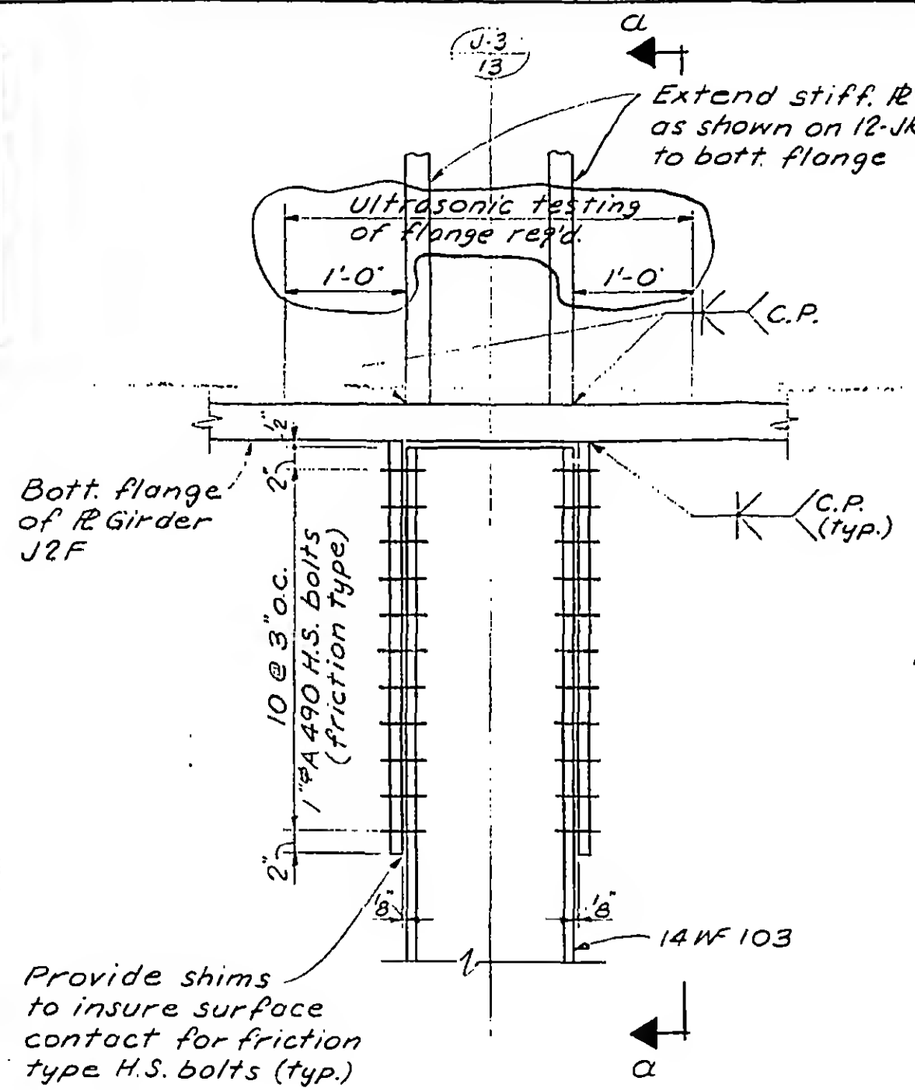
LICENSED PROFESSIONAL ENGINEER
LESLIE E. ROBERTSON
No. 34360
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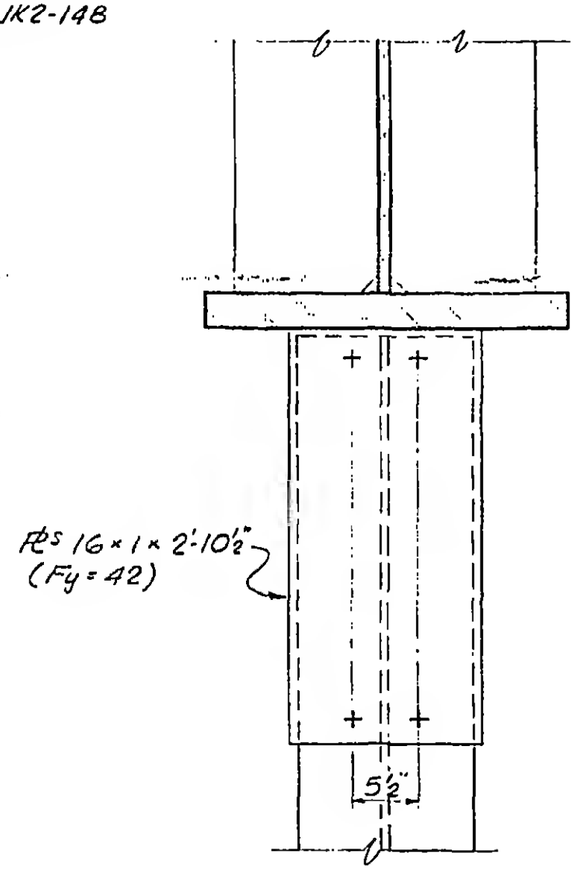
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PROJECT THE WORLD TRADE CENTER | TITLE CONNECTION DETAIL | DATE 6-28-68

REVISIONS
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Section a-a

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12-JK2-118A

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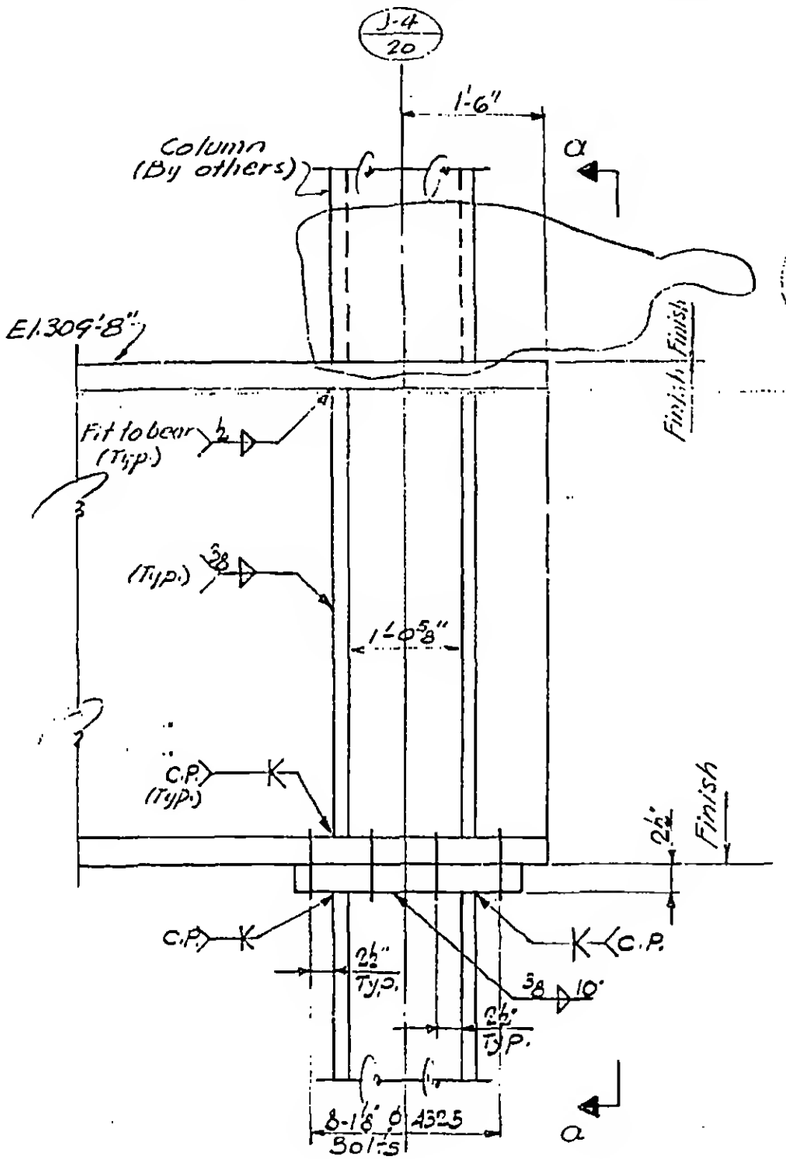
PROJECT THE WORLD TRADE CENTER | TITLE GIRDER CONNECTION DETAIL | DATE 5-1-68

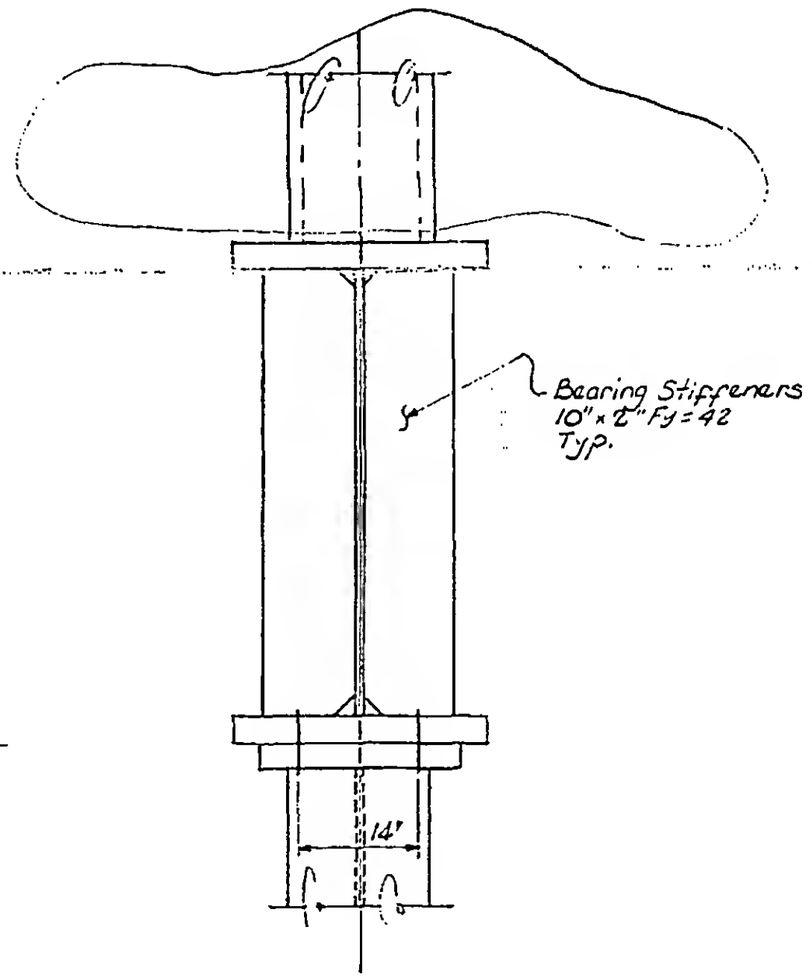
REVISIONS

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7-19-68

9-4-68





Section a-a

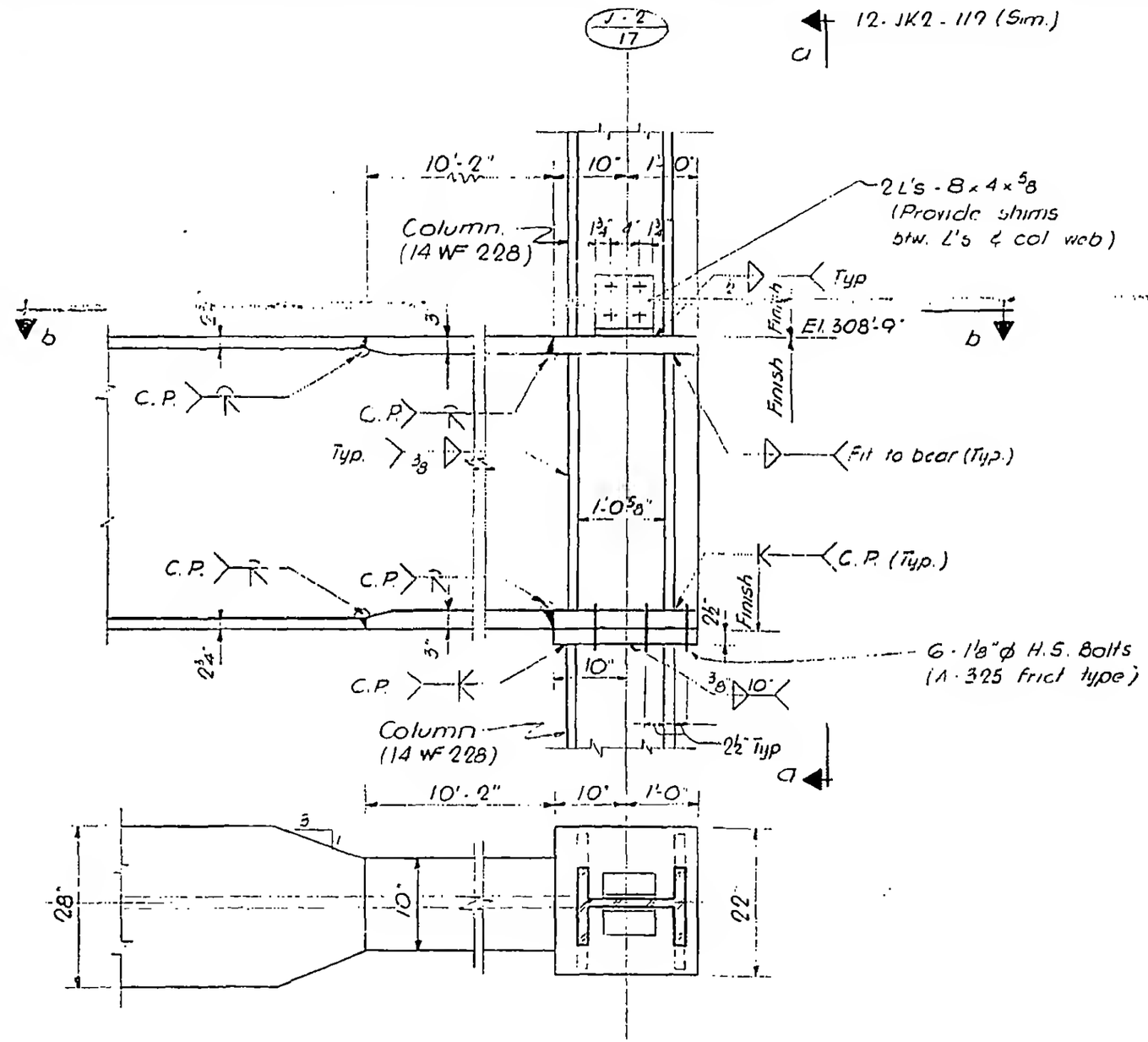
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12-JK2-119

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PROJECT THE WORLD TRADE CENTER | TITLE GIRDER CONNECTION DETAIL | DATE 6-7-68

REVISIONS



Section b-b

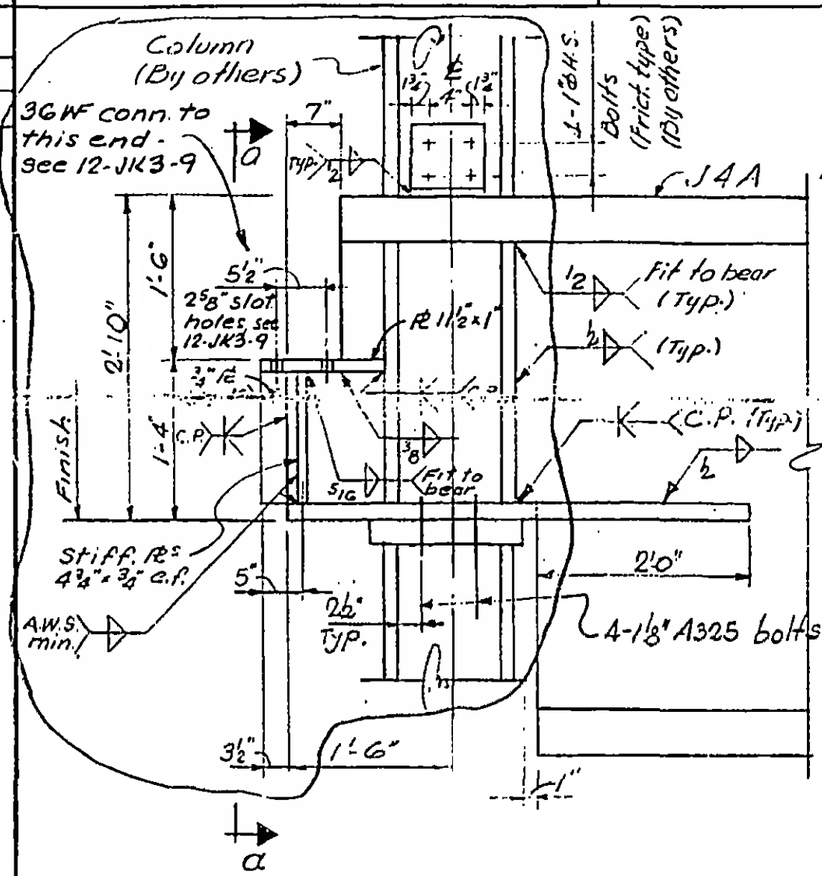
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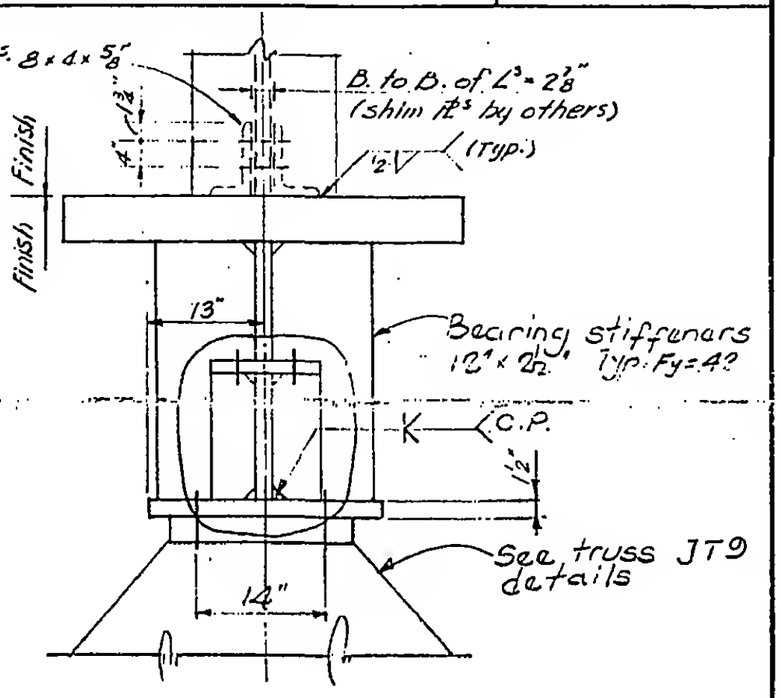
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PROJECT THE WORLD TRADE CENTER | TITLE GIRDER CONNECTION DETAILS | DATE 5-1-68

REVISIONS
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1-3-69





Section a-a

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E.L.

12-JK2-120

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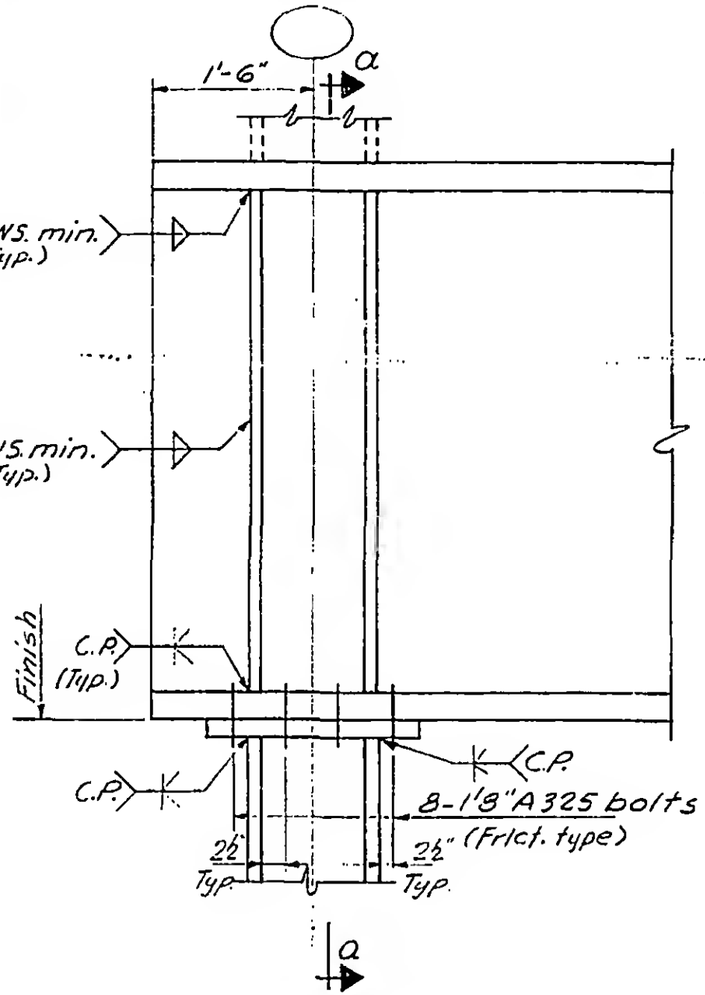
PROJECT THE WORLD TRADE CENTER | TITLE GIRDER CONNECTION DETAIL | DATE 5-1-68

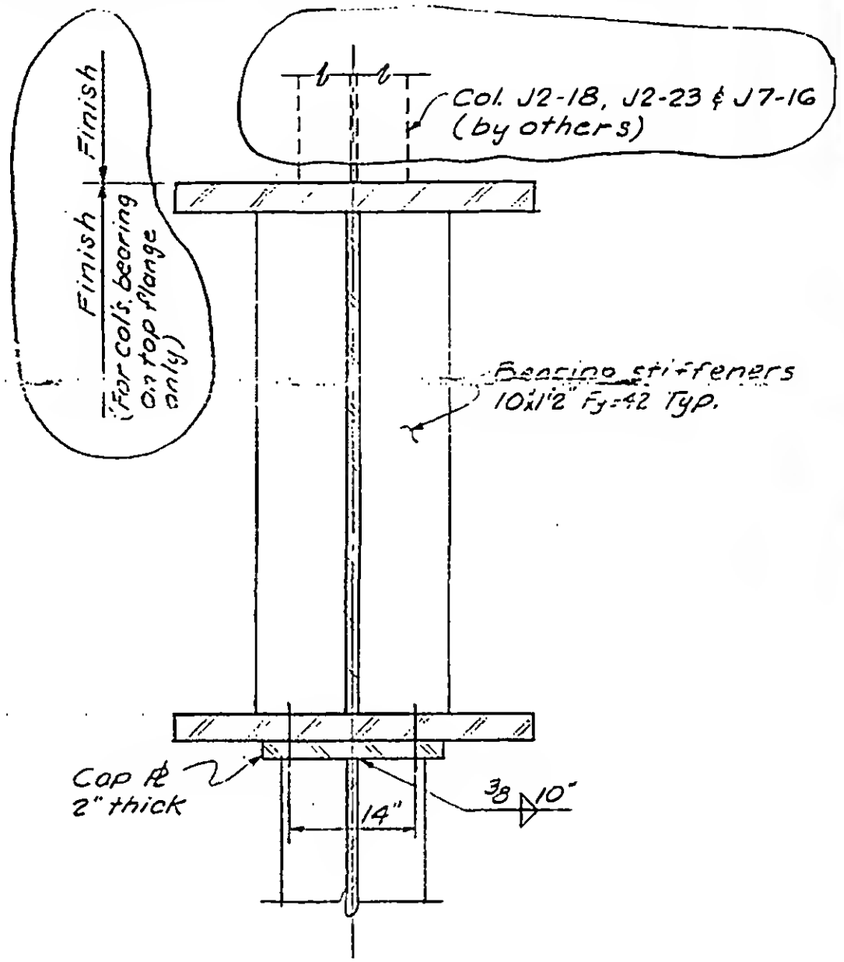
REVISIONS

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8-30-68

11-5-68





Section a-a

LICENSED PROFESSIONAL ENGINEER LESLIE E. ROBERTSON No. 34360 IN THE STATE OF NEW YORK

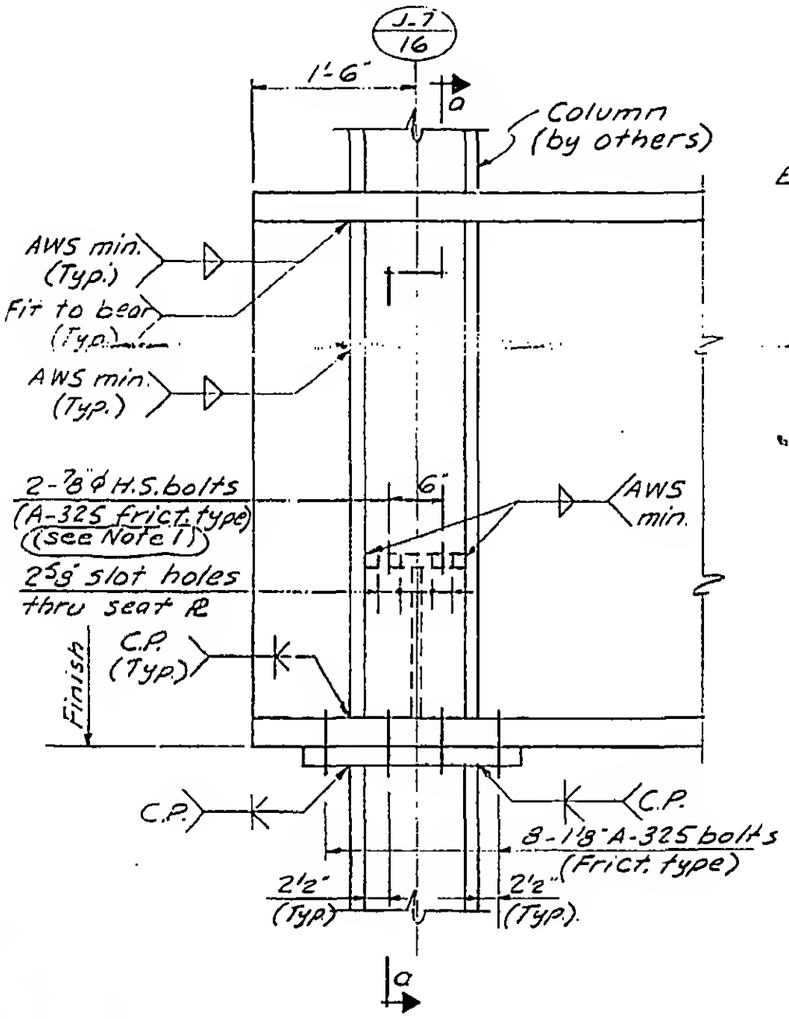
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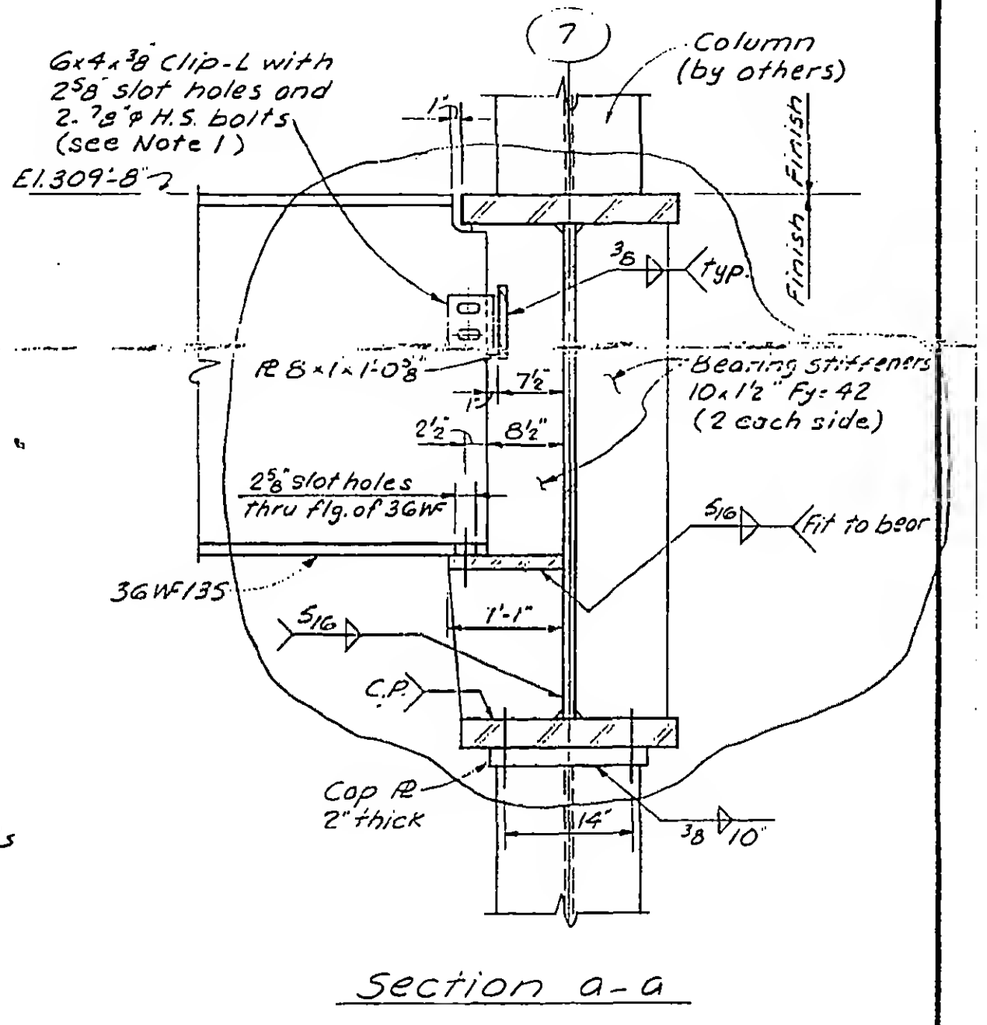
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PROJECT: THE WORLD TRADE CENTER | TITLE: GIRDER CONNECTION DETAIL | DATE: 3-17-69

REVISIONS

4-18-69





Section a-a

Notes:

1. Tighten all bolts only after pouring concrete to the strip of Const. Jt. as shown on plan.

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DESIGNED

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A.L. FRANQUI

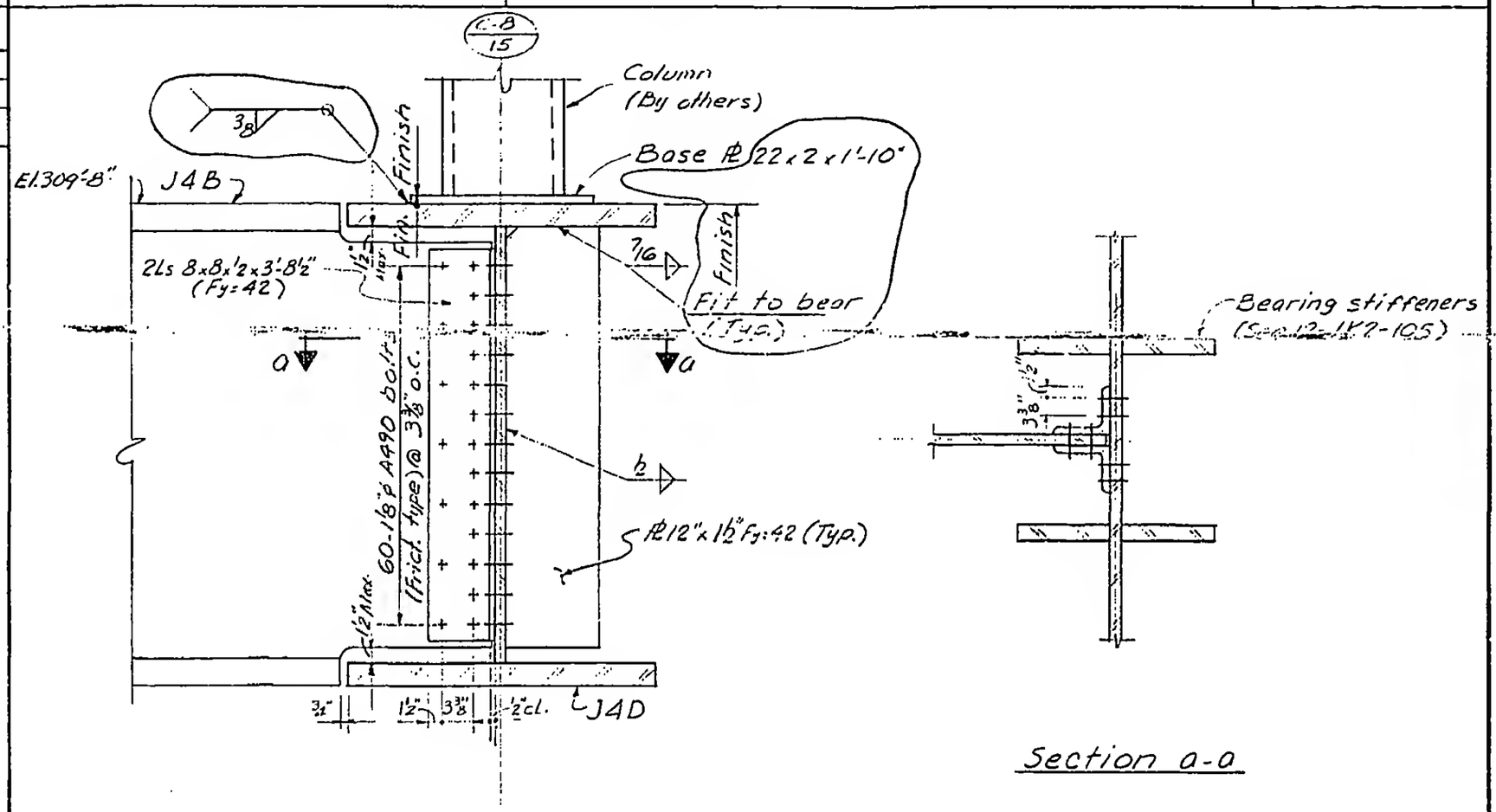
REVIEWED
E.L.

12-JK2-121A

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PROJECT THE WORLD TRADE CENTER | TITLE GIRDER CONNECTION DETAIL | DATE 5-1-68

REVISIONS
7-19-68
9-4-68
12-3-68



Note:
Some bearing stiffeners omitted from elevation for clarity. see Section a-a.

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UNIVERSITY OF THE STATE OF NEW YORK

12-JK2-122

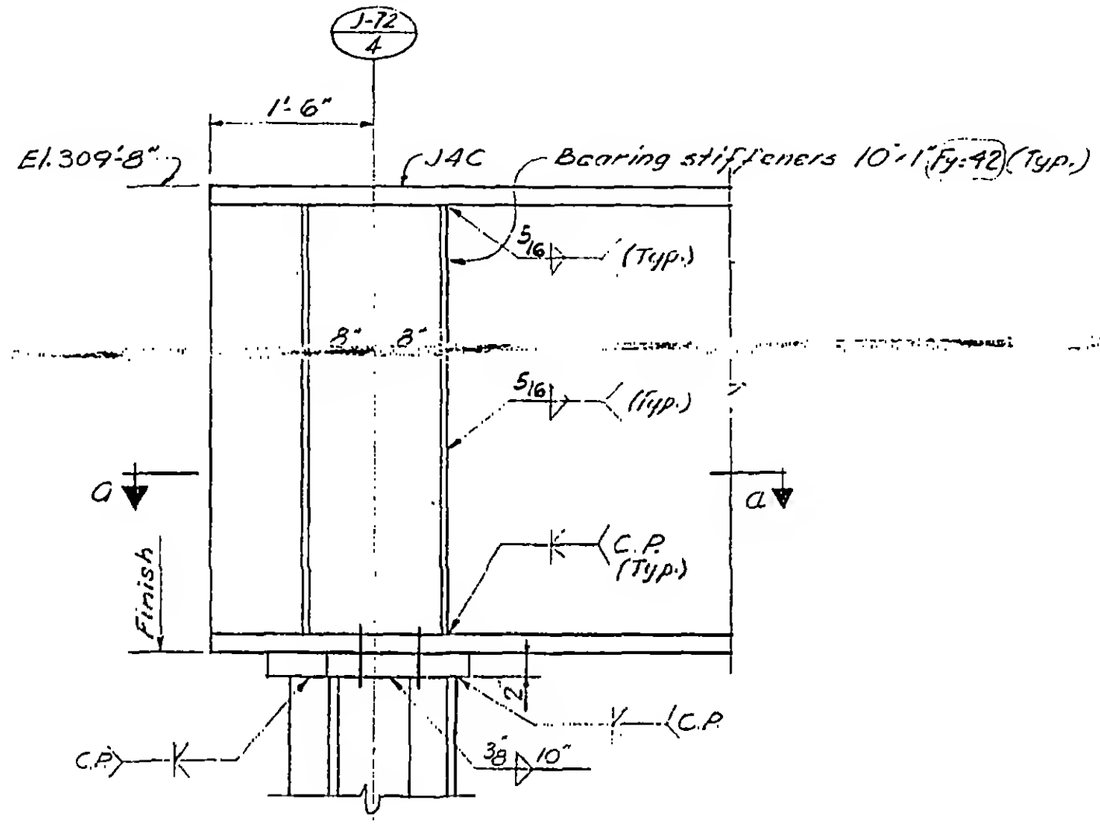
SKILLING - HELLE - CHRISTIANSEN - ROBERTSON Structural & Civil Engineers

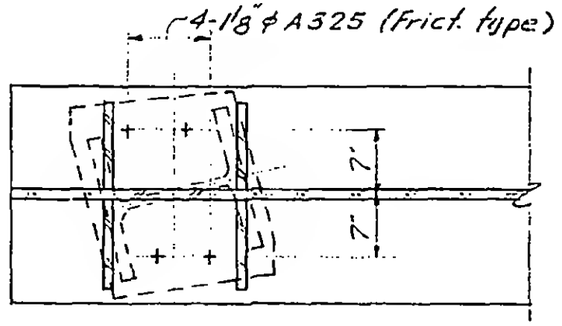
PROJECT THE WORLD TRADE CENTER | TITLE GIRDER CONNECTION DETAIL | DATE 5-1-68

REVISIONS

6-28-68

7-19-68





Section a-a

Note:
This detail similar to detail 12-JK2-128 except bolts must match skewed column as shown in section a-a

12-JK2-123

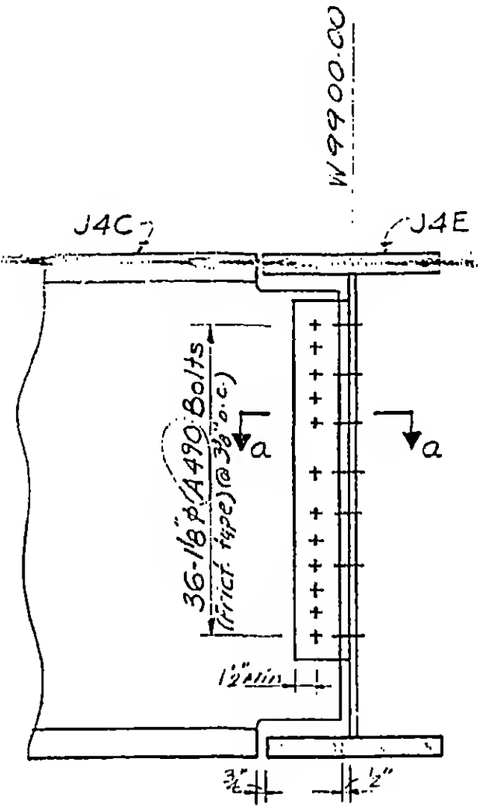
LICENSED PROFESSIONAL ENGINEER
LESLIE E. ROBERTSON
No. 34360
UNIVERSITY OF THE STATE OF NEW YORK

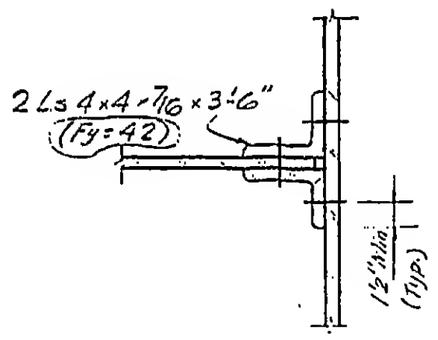
SKILLING - HELLE - CHRISTIANSEN - ROBERTSON Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE GIRDER CONNECTION DETAIL | DATE 5-1-68

REVISIONS

7-19-68





Section a-a

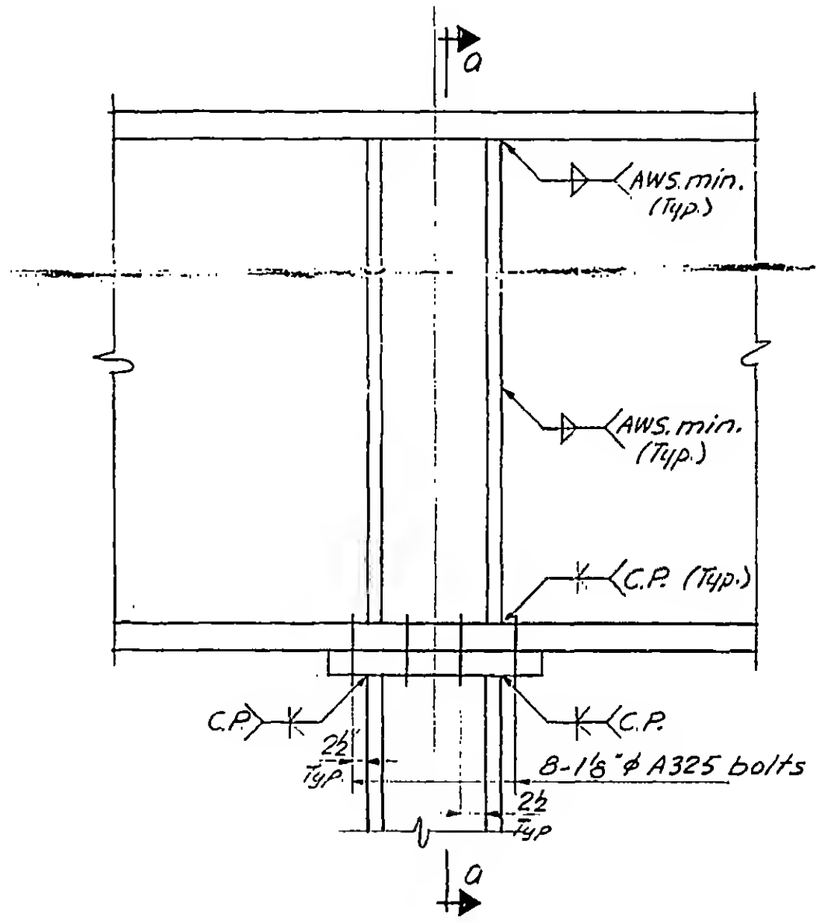
LICENSED PROFESSIONAL ENGINEER
LESLIE E. ROBERTSON
No. 34360
UNIVERSITY OF THE STATE OF NEW YORK

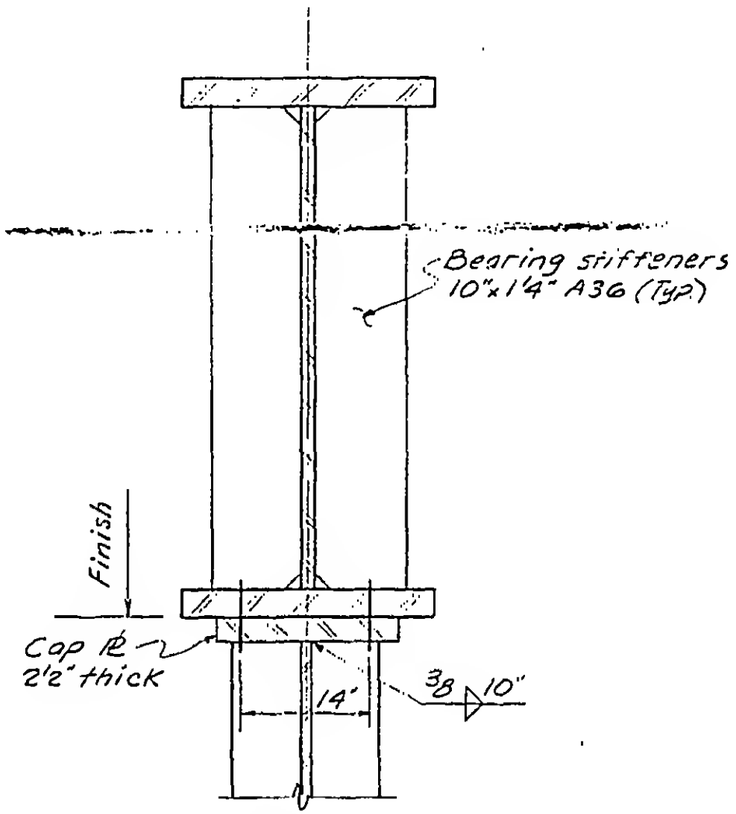
12-JK2-124

SKILLING - HELLE - CHRISTIANSEN - ROBERTSON Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE GIRDER CONNECTION DETAIL | DATE 5-1-68

REVISIONS





Section a-a

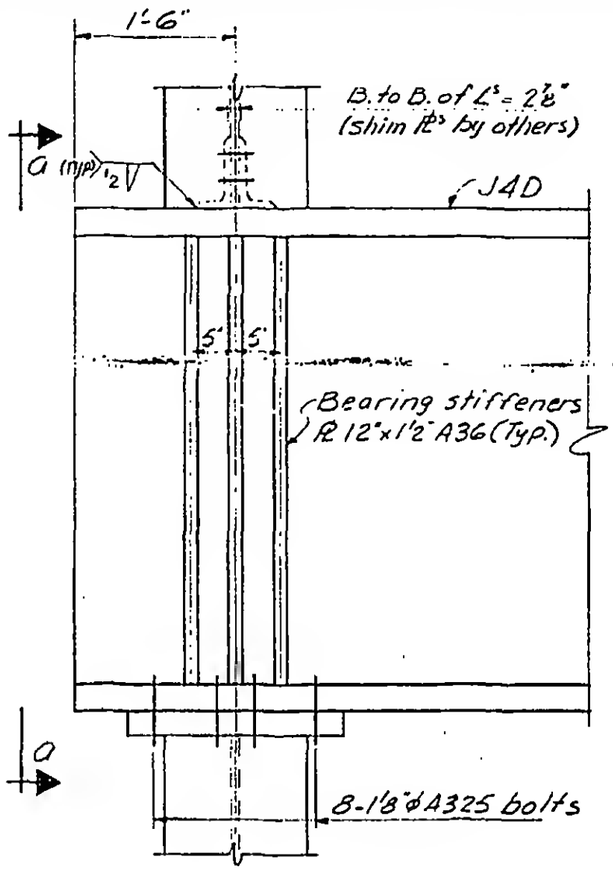
LICENSED PROFESSIONAL ENGINEER
LESLIE E. ROBERTSON
No. 34360
STATE OF NEW YORK

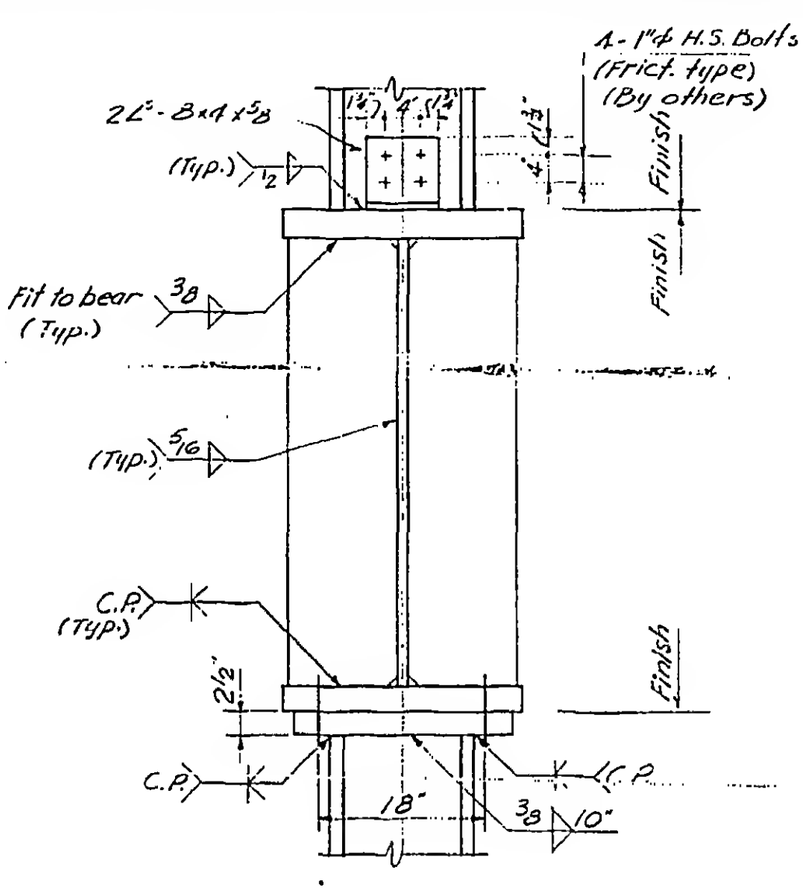
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SKILLING - HELLE - CHRISTIANSEN - ROBERTSON Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE GIRDER CONNECTION DETAIL | DATE 5-1-68

REVISIONS





Section a-a

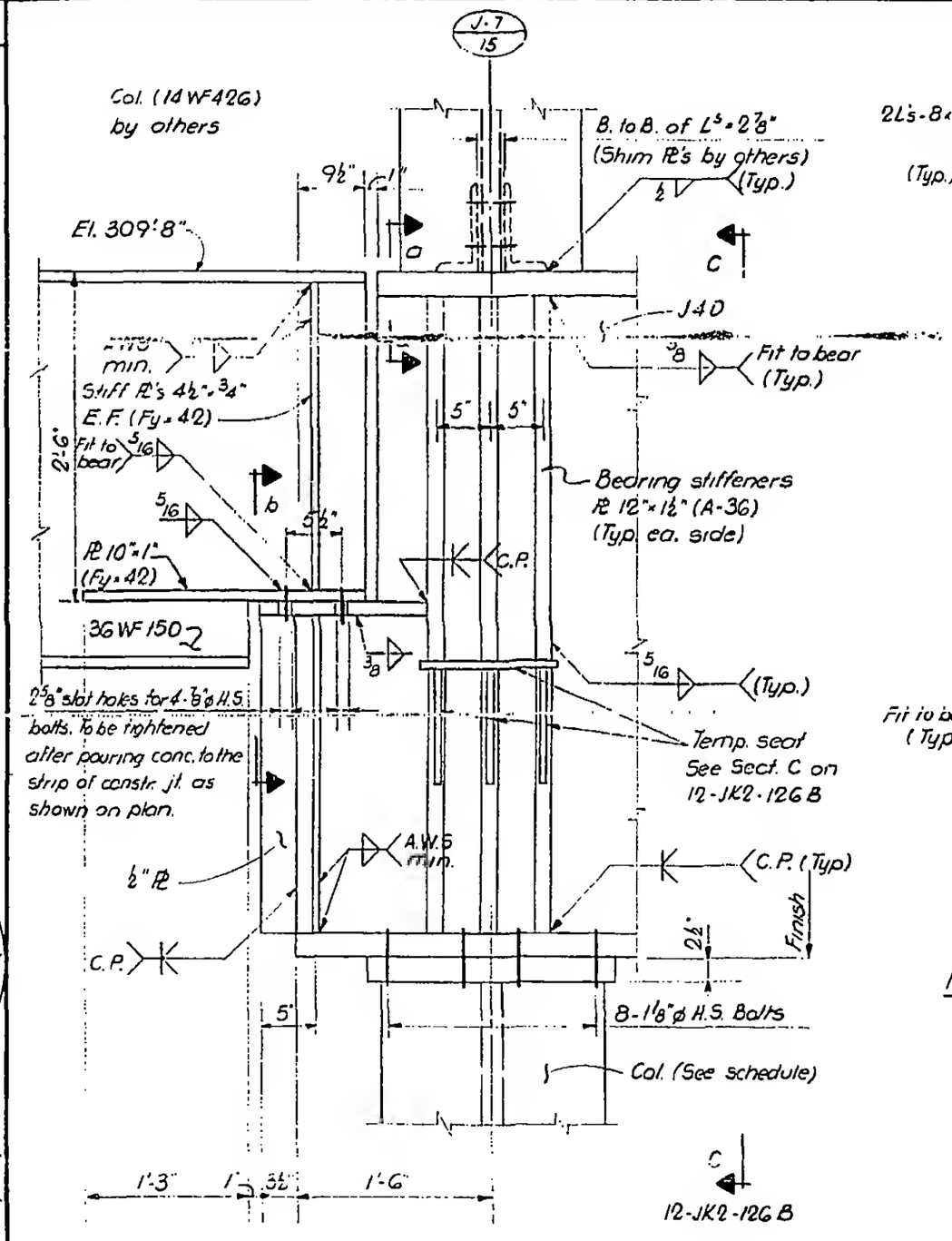
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LESLIE E. ROBERTSON
No. 50260
UNIVERSITY OF THE STATE OF NEW YORK

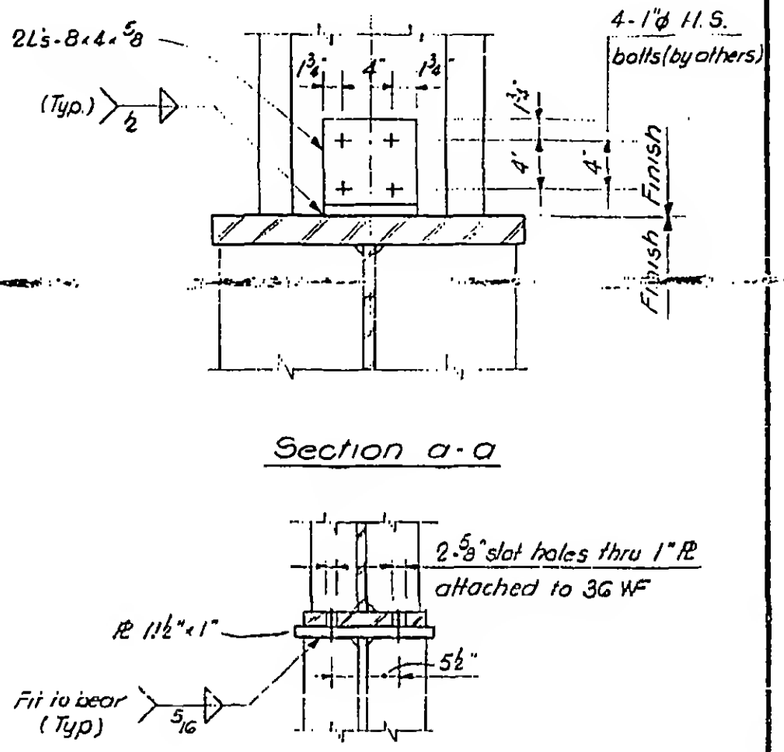
12-JK2-126

SKILLING, HELLE, CHRISTIANSEN, ROBERTSON — Structural & Civil Engineers

PROJECT: THE WORLD TRADE CENTER | TITLE: GIRDER CONNECTION DETAIL | DATE: 1-20-69

REVISIONS





Section a-a

Section b-b

Notes:

1. All H.S. bolts to be A-325 friction type, except as noted
2. All welds to be E 70xx.
3. Provide washers 2½×⅝ (square or round) with fy=50 ksi for all bolts over slot holes

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DRAWN: G. T. H.

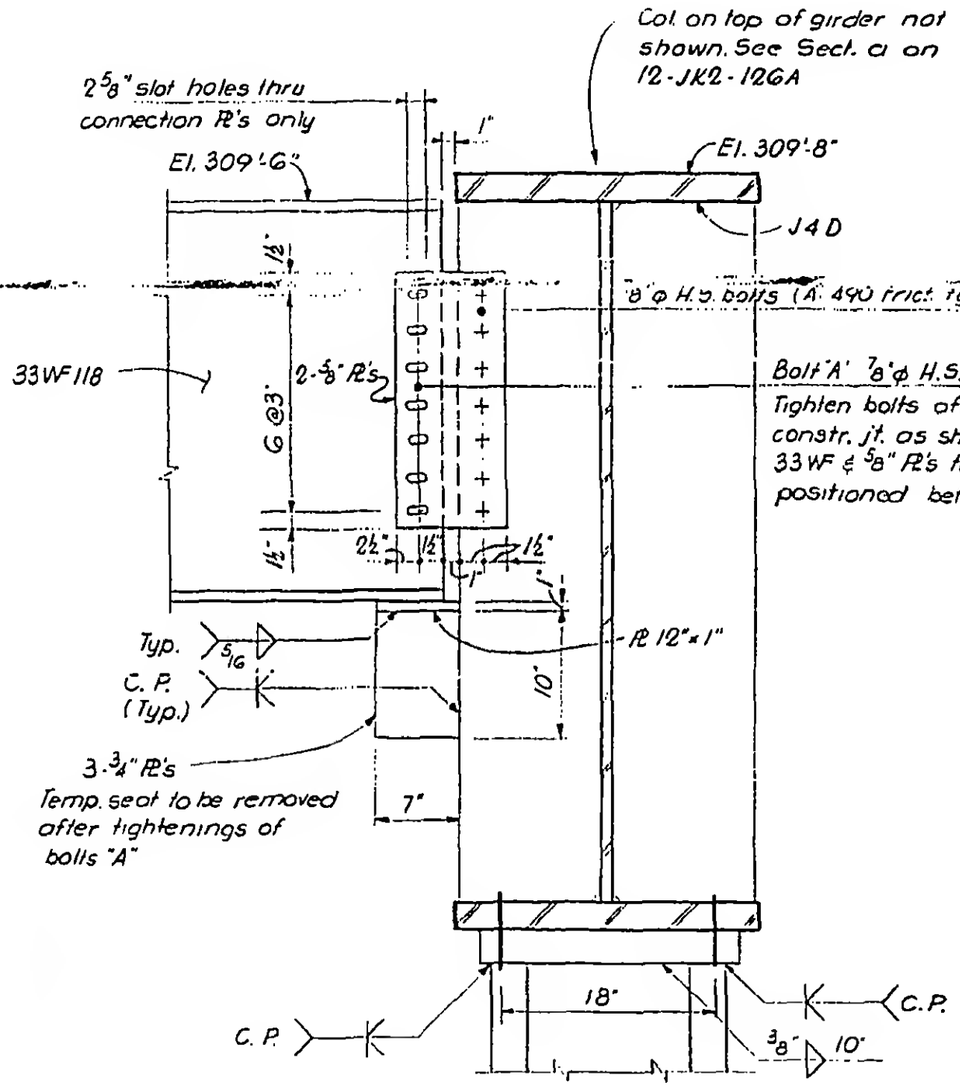
REVIEWED: E. L.

12-JK2-126 A

SKILLING, HELLE, CHRISTIANSEN, ROBERTSON — Structural & Civil Engineers

PROJECT: THE WORLD TRADE CENTER | TITLE: GIRDER CONNECTION DETAIL | DATE: 1-20-69

REVISIONS



Bolt 'A' 7/8"φ H.S. bolts (A-490 fricl. type)
Tighten bolts after pouring conc. to the strip of constr. j't. as shown on plan. Shim Pl's btw. 33WF & 5/8" Pl's to be field measured and positioned before tightening of bolts.

Notes:

1. All welds to be E70xx.
2. Provide washers 2½x5/8 (square or round) with fy=50ksi for all bolts over slot holes.

Section C-C

LICENSED PROFESSIONAL ENGINEER — LESLIE E. ROBERTSON — No. 34380 — UNIVERSITY OF THE STATE OF NEW YORK

DESIGNED

DRAWN: G. T. H.

REVIEWED: E. L.

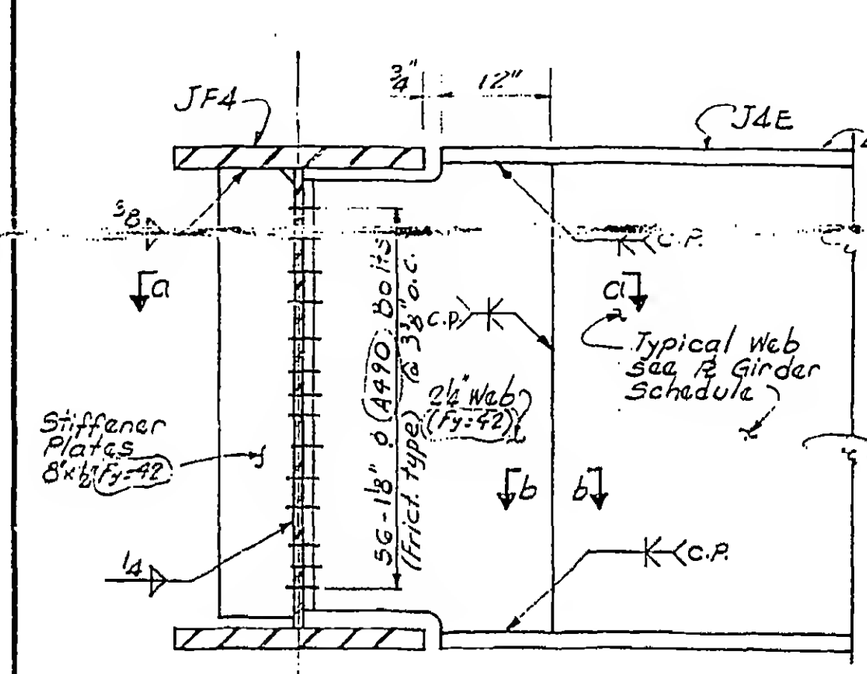
12-JK2-126B

SKILLING - HELLE - CHRISTIANSEN - ROBERTSON Structural & Civil Engineers

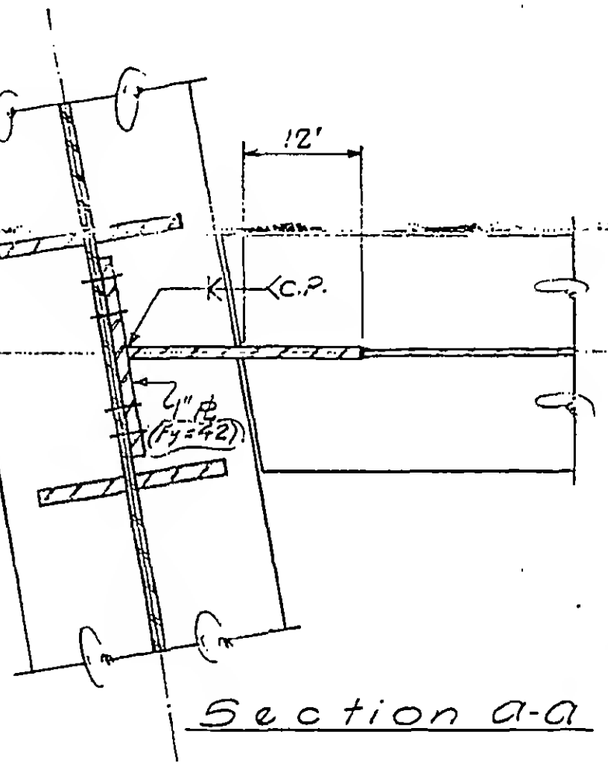
PROJECT THE WORLD TRADE CENTER | TITLE GIRDER CONNECTION DETAIL | DATE 5-1-68

REVISIONS

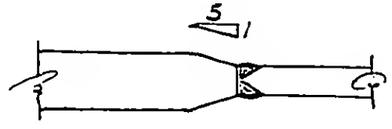
7-19-68



Note:
Some stiffeners omitted from elevation for clarity, see section a-a



Section a-a



Section b-b

LICENSED PROFESSIONAL ENGINEER
LESLIE E. ROBERTSON
No. 34360
STATE OF WASHINGTON

12-JK2-127

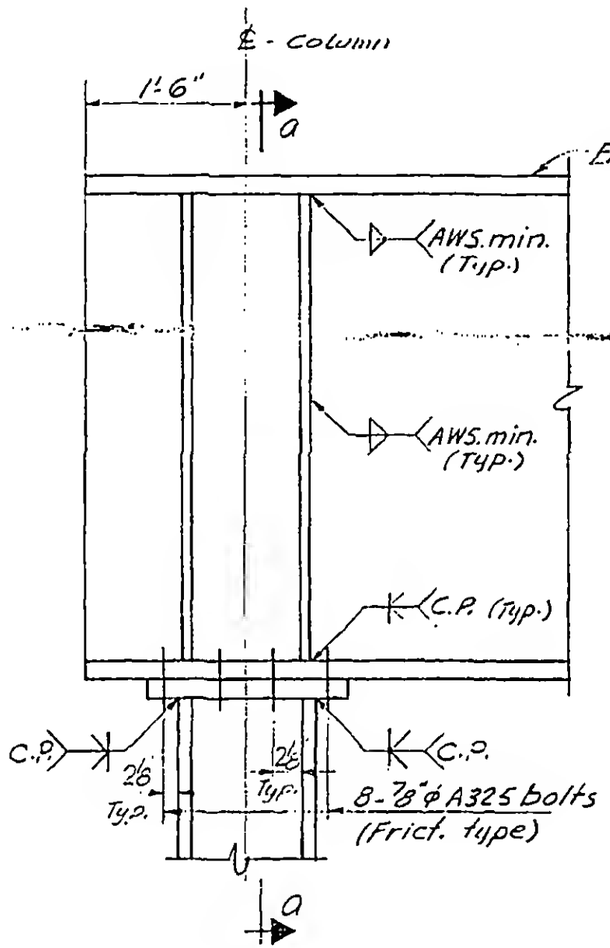
SKILLING - HELLE - CHRISTIANSEN - ROBERTSON Structural & Civil Engineers

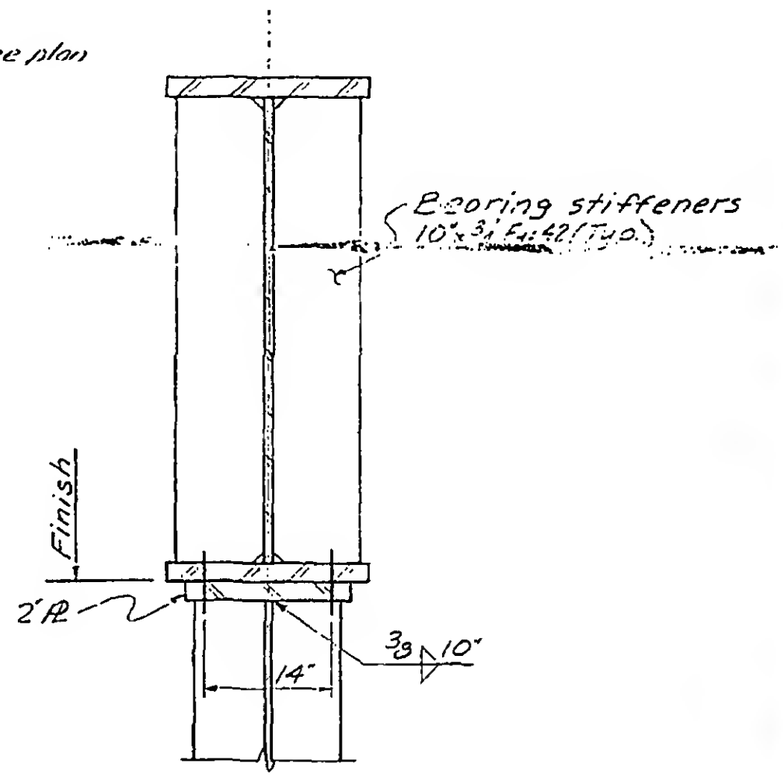
PROJECT THE WORLD TRADE CENTER | TITLE GIRDER CONNECTION DETAIL | DATE 5-1-68

REVISIONS

6-28-68

7-19-68





Section a-a

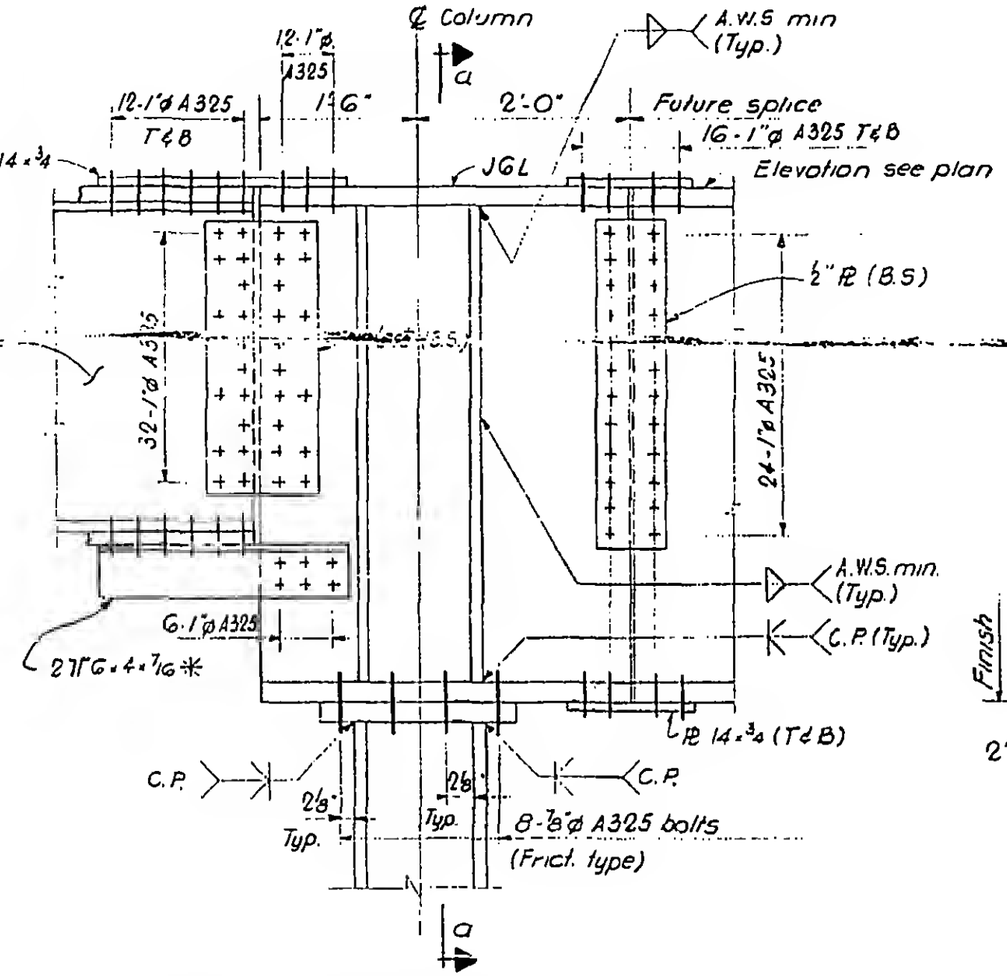
LICENSED PROFESSIONAL ENGINEER LESLIE E. ROBERTSON No. 34360 STATE OF NEW YORK

12-JK2-128

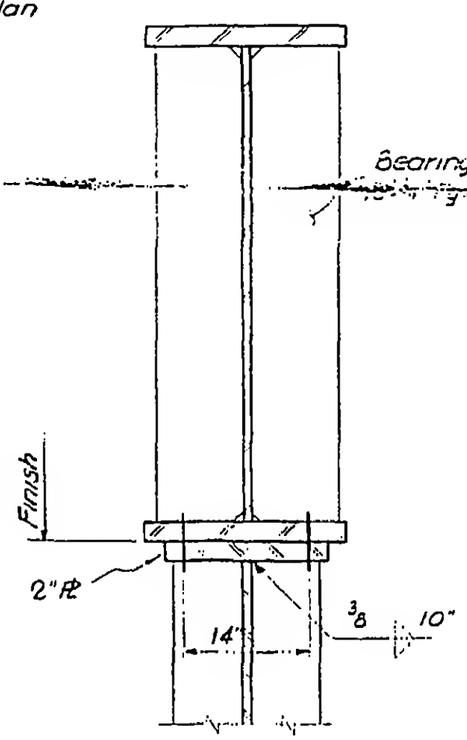
SKILLING, HELLE, CHRISTIANSEN, ROBERTSON — Structural & Civil Engineers

PROJECT: THE WORLD TRADE CENTER | TITLE: GIRDER CONNECTION DETAIL | DATE: 1-20-69

REVISIONS



* Remove 2 ⌊ 6 x 4 after "future splice" has been completed



Section a-a

LICENSED PROFESSIONAL ENGINEER — LESLIE E. ROBERTSON — No. 34360 — UNIVERSITY OF THE STATE OF NEW YORK

DESIGNED

DRAWN G.T.H.

REVIEWED E.L.

12-JK2-128 A

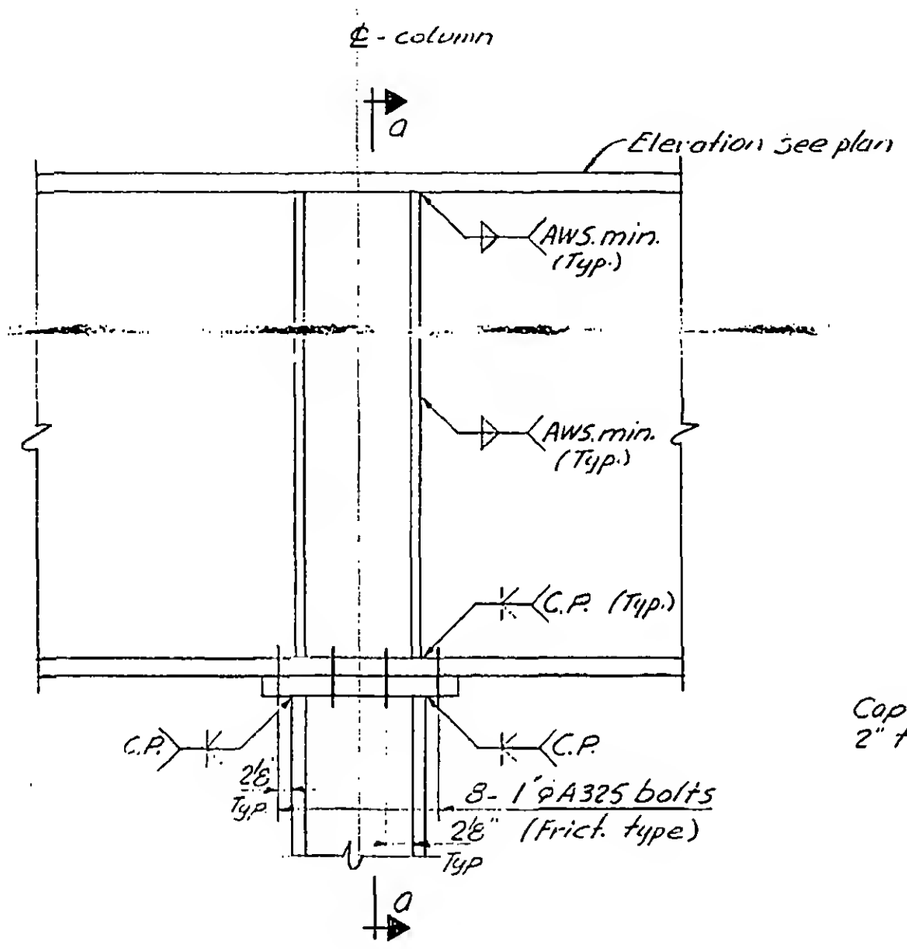
SKILLING - HELLE - CHRISTIANSEN - ROBERTSON Structural & Civil Engineers

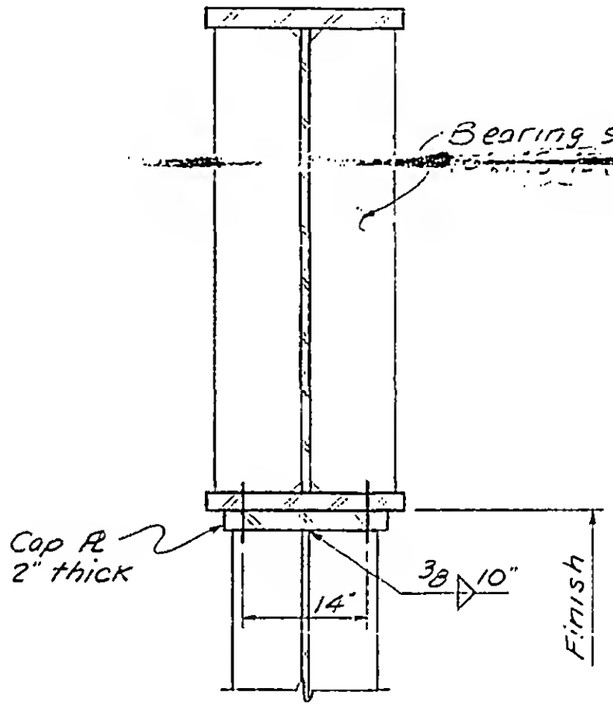
PROJECT THE WORLD TRADE CENTER | TITLE GIRDER CONNECTION DETAIL | DATE 5-1-68

REVISIONS

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7-19-68





Section a-a

LICENSED PROFESSIONAL ENGINEER LESLIE E. ROBERTSON No. 34360 LICENSED TO PRACTICE IN THE STATE OF NEW YORK

12-JK2-129

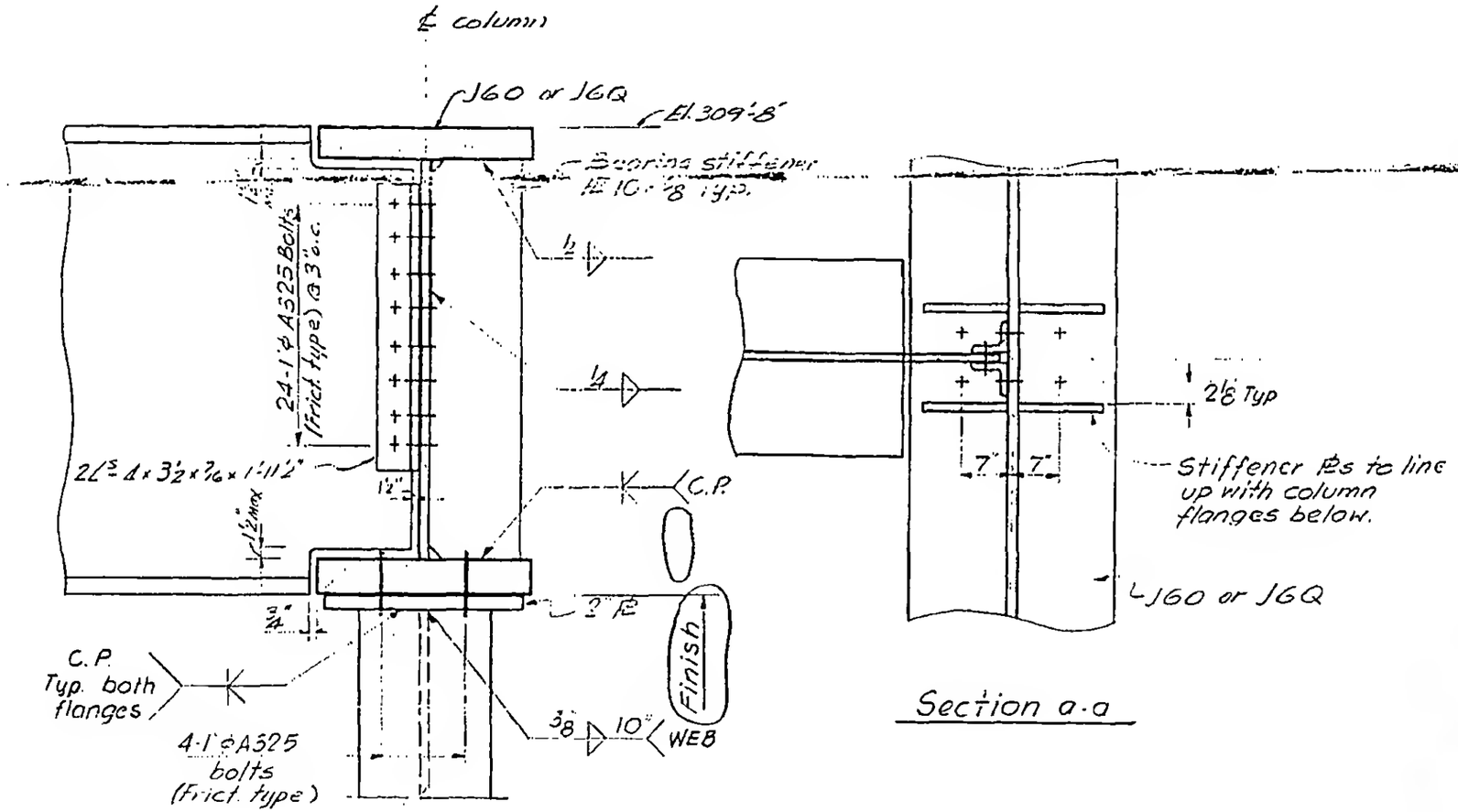
SKILLING - HELLE - CHRISTIANSEN - ROBERTSON Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE GIRDER CONNECTION DETAIL | DATE 5-1-68

REVISIONS

6-7-68

6-28-68



Section a-a

Note: Some stiffeners omitted from elevation for clarity. See Sect. a-a

LESLIE E. ROBERTSON
No. 34360
UNIVERSITY OF THE STATE OF NEW YORK

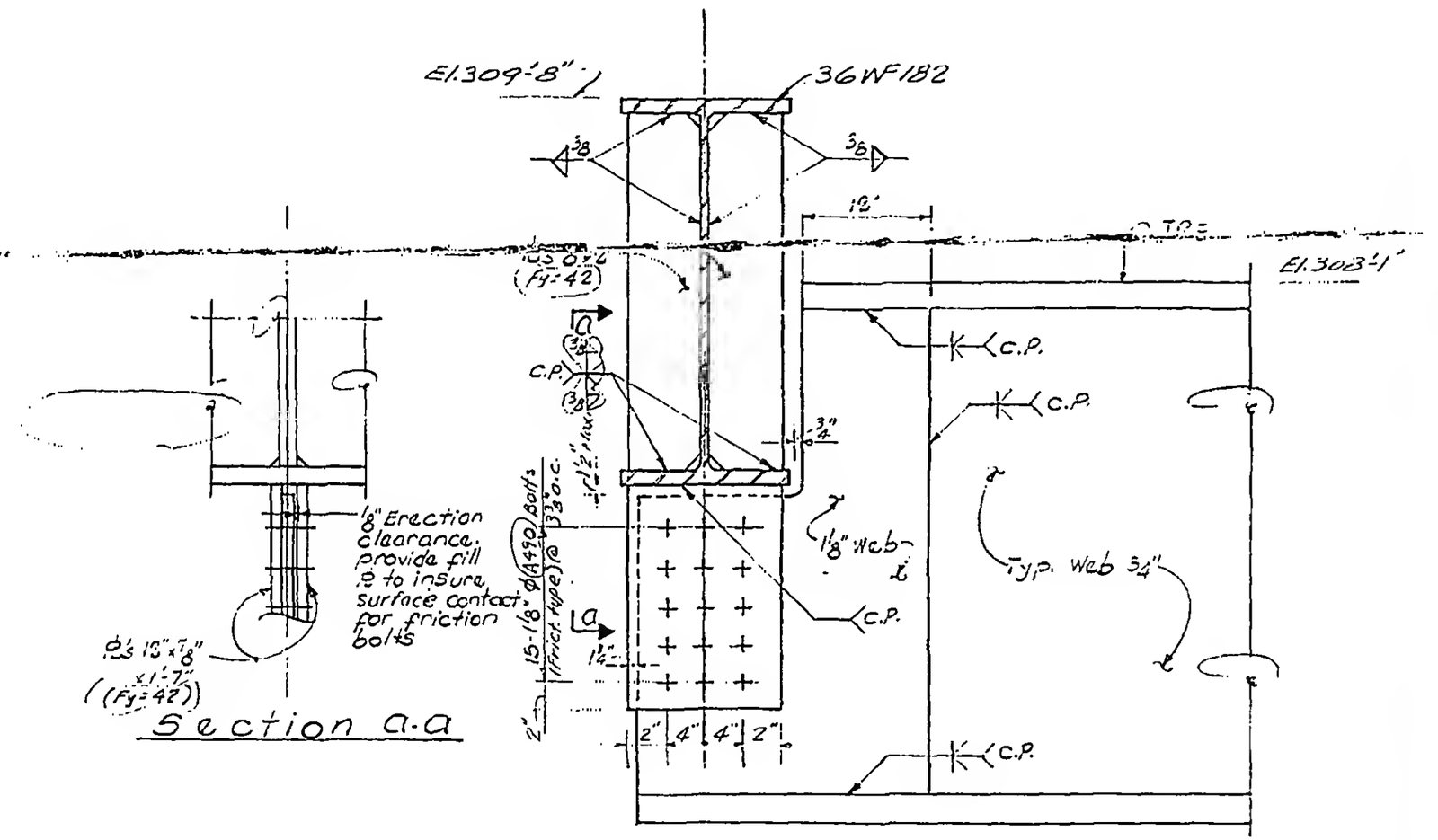
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SKILLING - HELLE - CHRISTIANSEN - ROBERTSON Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE GIRDER CONNECTION DETAIL | DATE 5-1-68

REVISIONS

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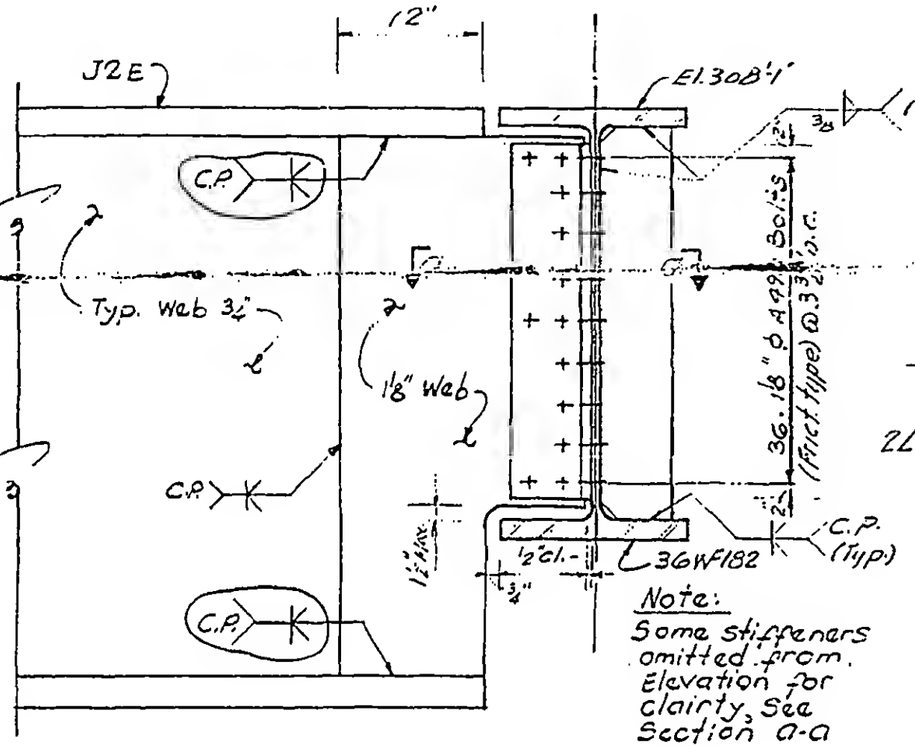
LICENSED PROFESSIONAL ENGINEER
LESLIE E. ROBERTSON
No. 34360
UNIVERSITY OF THE STATE OF NY

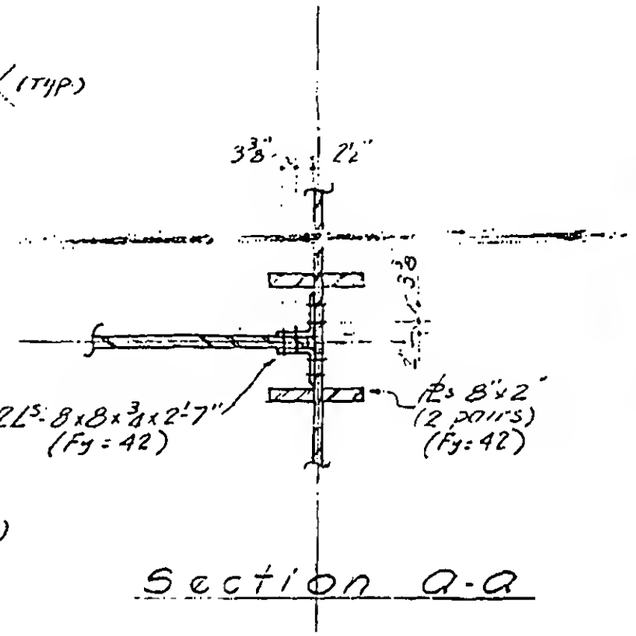
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SKILLING - HELLE - CHRISTIANSEN - ROBERTSON Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE GIRDER CONNECTION DETAIL | DATE 5-1-68

REVISIONS
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1-8-69





Section a-a

LICENSED PROFESSIONAL ENGINEER
LESLIE E. ROBERTSON
No. 34960
REGISTERED BY THE STATE OF NEW YORK

DRAWN
A.F.

REVIEWED
E.L.

12-JK2-132

SKILLING - HELLE - CHRISTIANSEN - ROBERTSON Structural & Civil Engineers

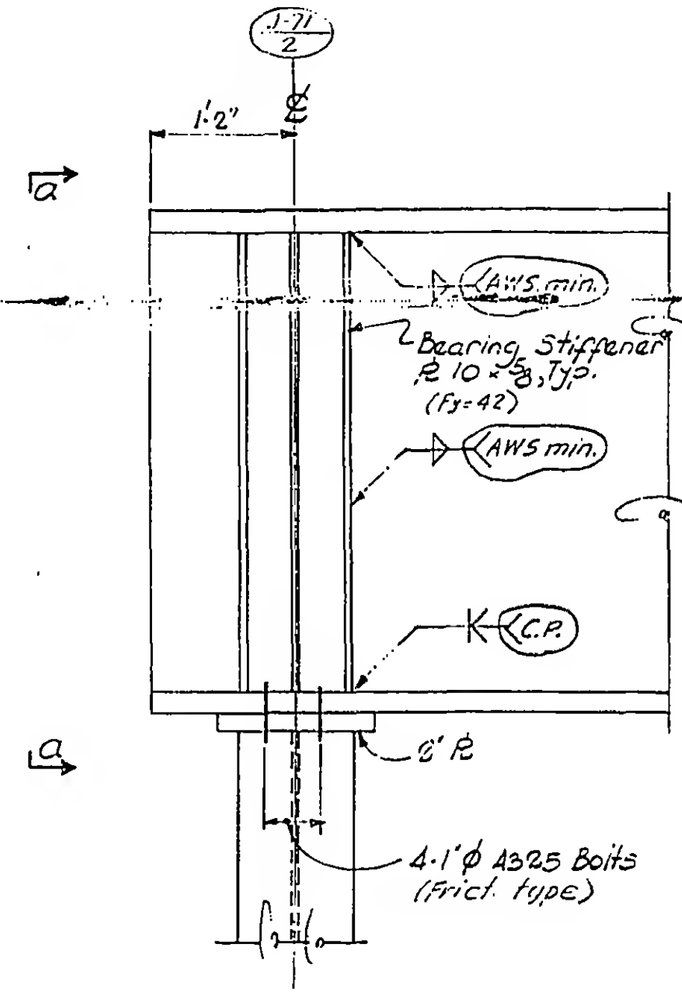
PROJECT THE WORLD TRADE CENTER | TITLE GIRDER CONNECTION DETAIL | DATE 5-1-68

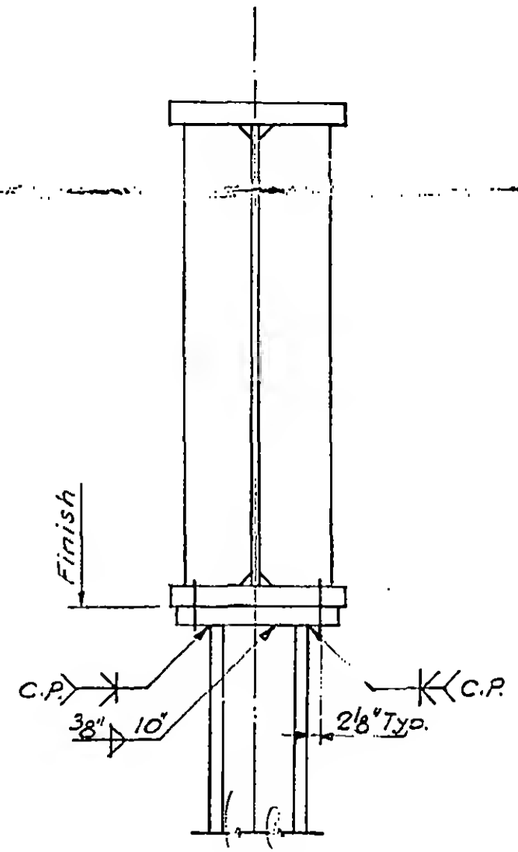
REVISIONS

6-28-68

7-19-68

1-8-69





Section a-a

LICENSED PROFESSIONAL ENGINEER
LESLIE E. ROBERTSON
No. 34360
UNIVERSITY OF THE STATE OF NEW YORK

DRAWN A.F.

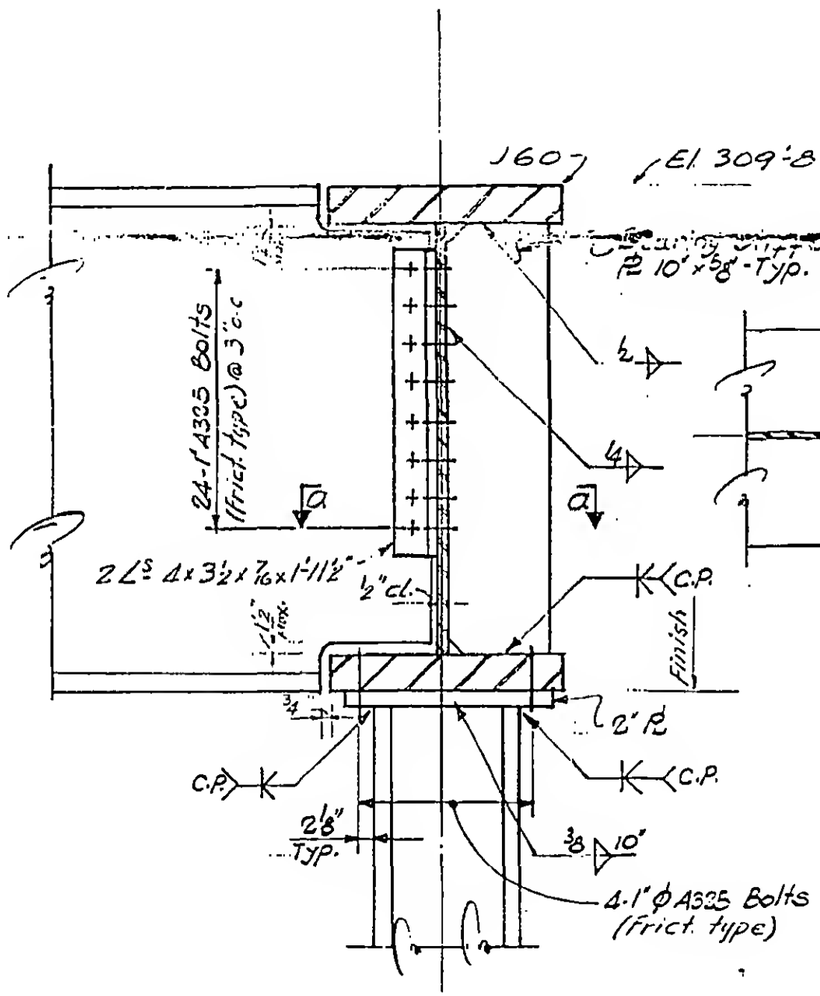
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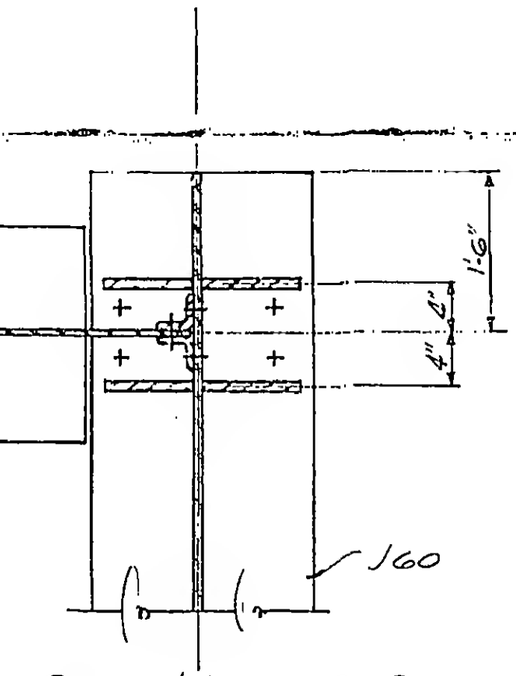
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SKILLING - HELLE - CHRISTIANSEN - ROBERTSON Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE GIRDER CONNECTION DETAIL | DATE 5-1-68

REVISIONS





Section a-a

Note:
Some stiffeners omitted from elevation for clarity-
See Section a-a

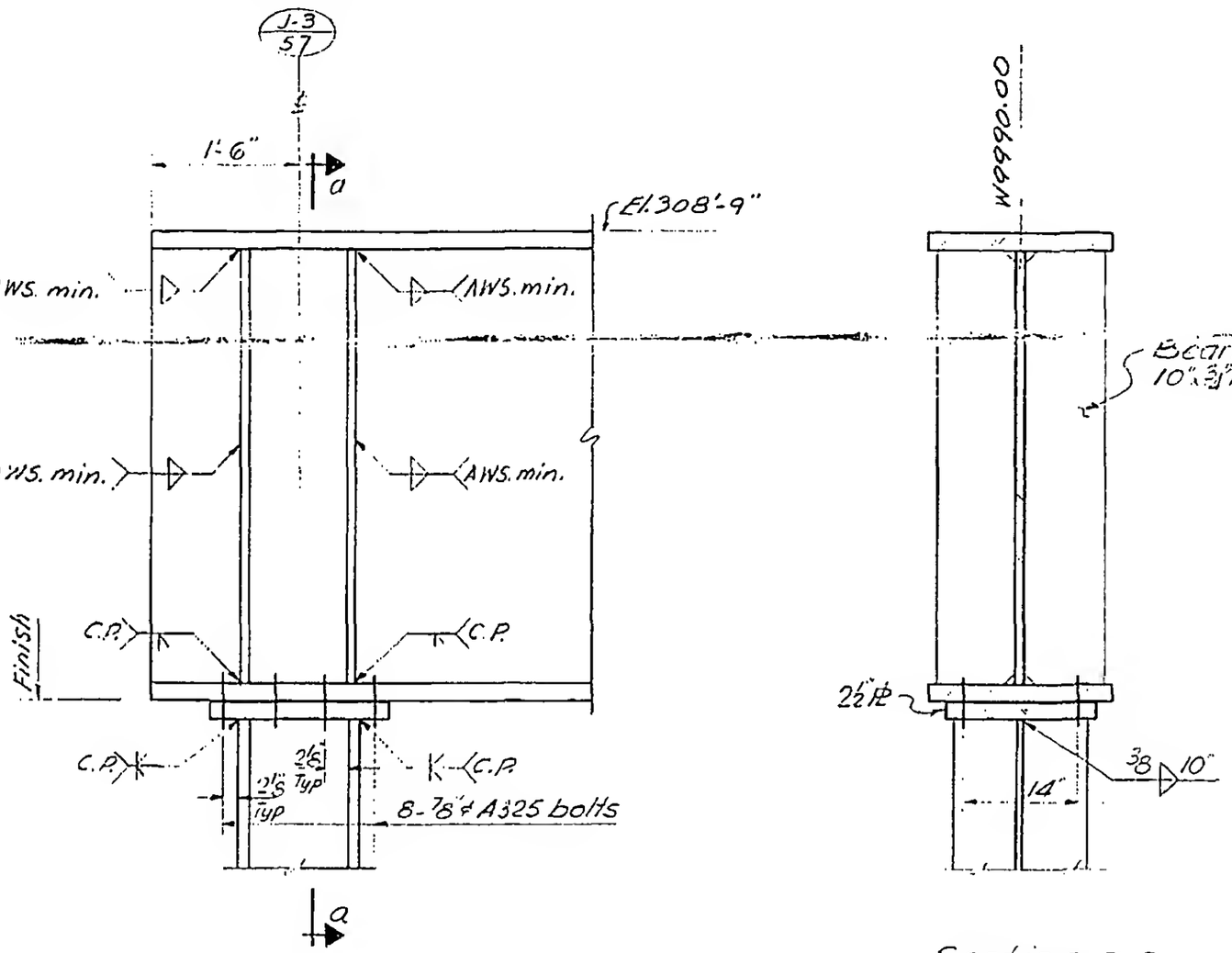
LESLIE E. ROBERTSON
No. 34360
REGISTERED PROFESSIONAL ENGINEER
UNIVERSITY OF THE STATE OF NEW YORK

12-JK2-134

SKILLING - HELLE - CHRISTIANSEN - ROBERTSON Structural & Civil Enginoors

PROJECT THE WORLD TRADE CENTER | TITLE GIRDER CONNECTION DETAIL | DATE 5-1-68

REVISIONS
6-7-68
7-19-68



Section a-a

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LESLIE E. ROBERTSON
No. 34360
STATE OF NEW YORK

12 - JK 2 - 135

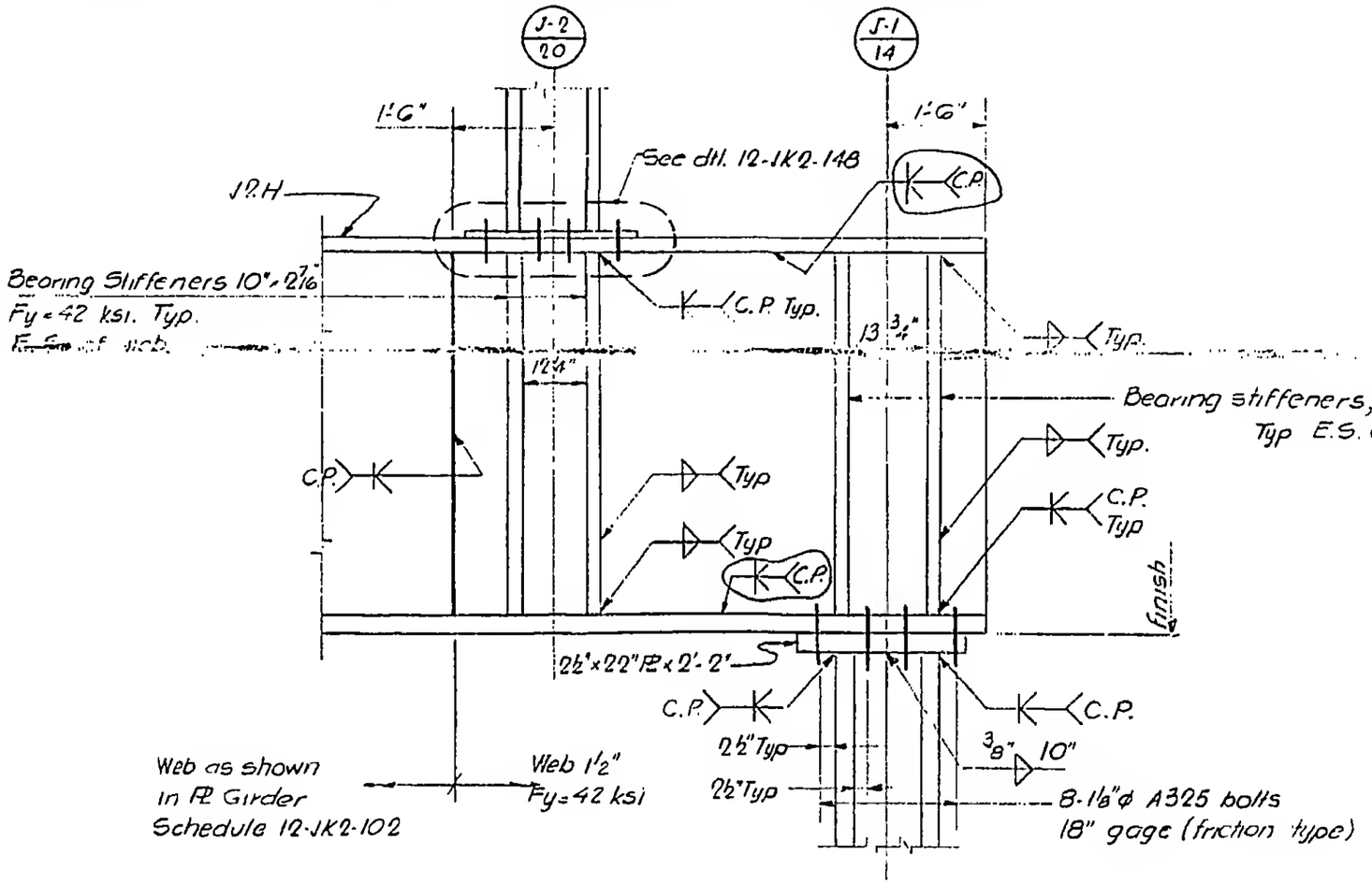
SKILLING - HELLE - CHRISTIANSEN - ROBERTSON Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE GIRDER J2H CONNECTION DETAILS | DATE 6-7-68

REVISIONS

7-19-68

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Welds are AISC minimum
unless otherwise shown

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No. 34360
UNIVERSITY OF THE STATE OF NEW YORK

DRAWN
A.F.

REVISED
E.L.

12-JK2-136

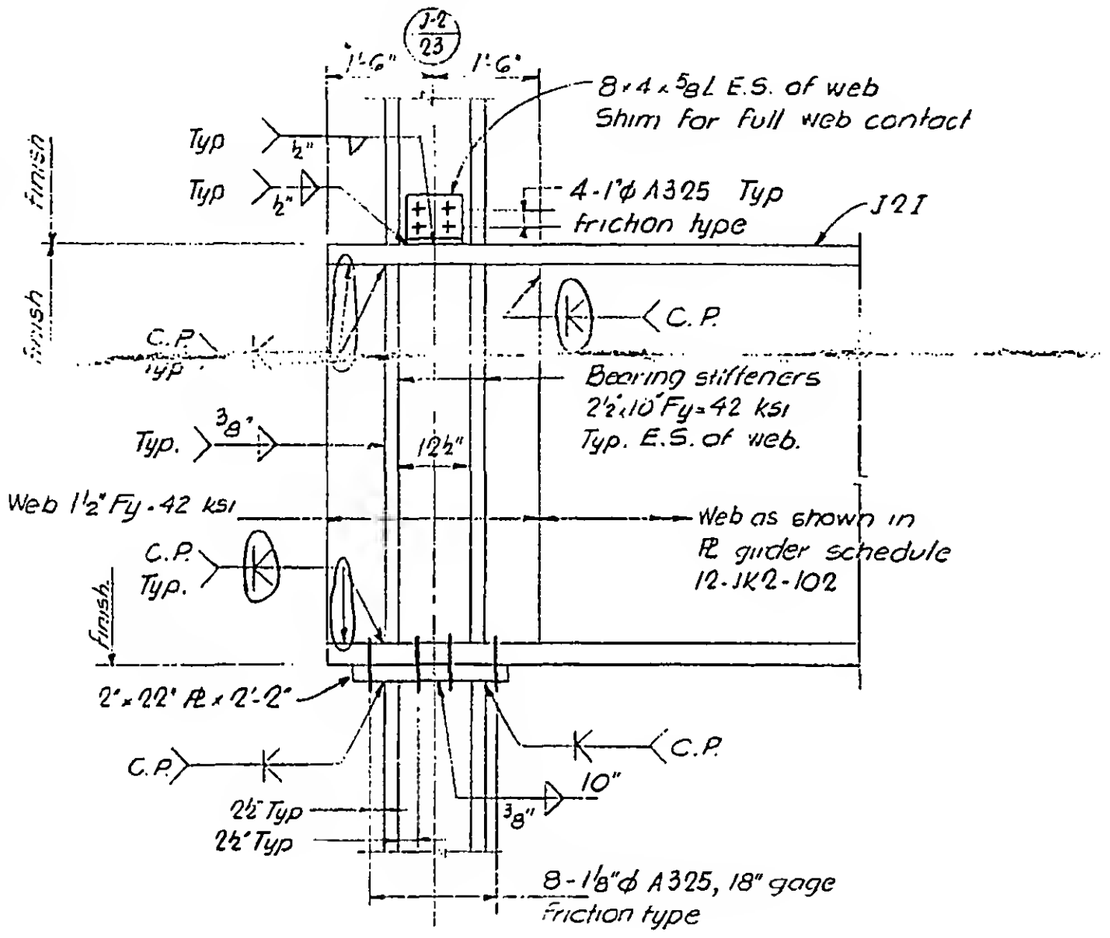
SKILLING - HELLE - CHRISTIANSEN - ROBERTSON Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE GIRDER J2I CONNECTION DETAIL | DATE 6-7-68

REVISIONS

1-19-68

1-8-69



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LESLIE E. ROBERTSON
No. 34360
UNIVERSITY OF THE STATE OF NEW YORK

Ref. dwgs. 12-JK2-102, SJ-75

DRAWN
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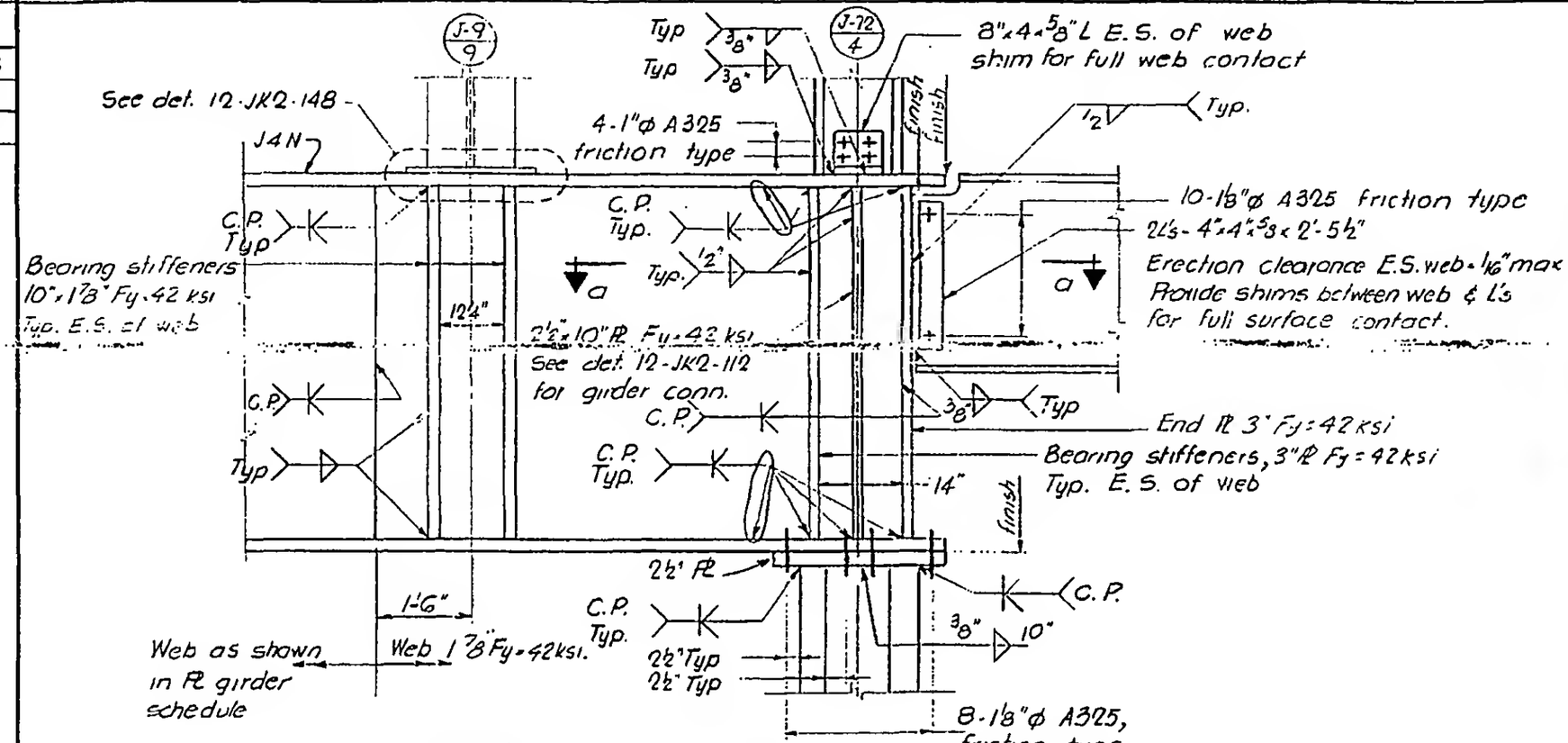
REVIEWED
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12-JK2-137

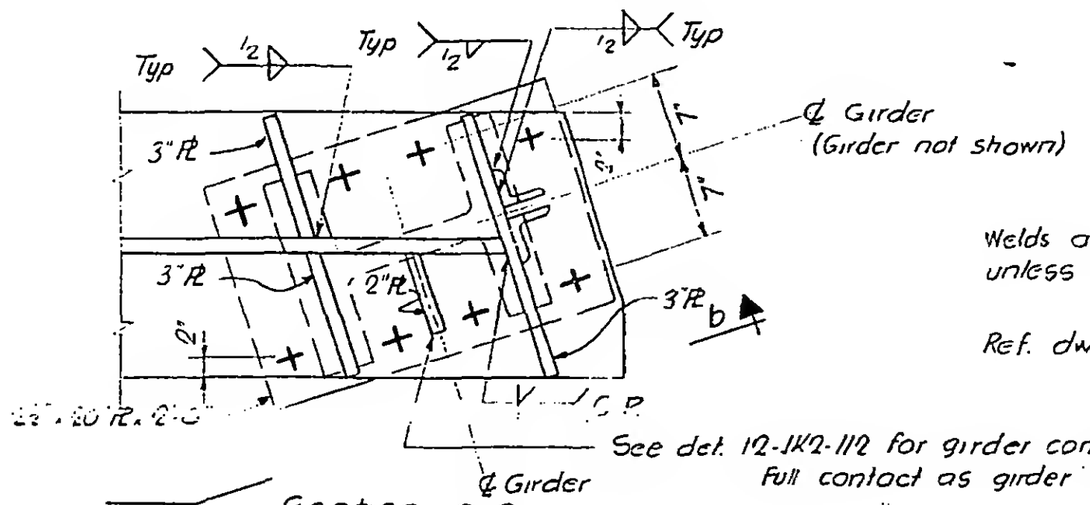
SKILLING - HELLE - CHRISTIANSEN - ROBERTSON Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE GIRDER J4N CONNECTION DETAIL | DATE 6-7-68

REVISIONS
7-19-68
9-4-68
1-8-69



Elevation - Section b-b



Welds are AISC minimum unless otherwise shown

Ref. dwgs: 12-JK2-102, SJ-76

See det. 12-JK2-112 for girder conn. Shim as req'd for full contact as girder web.

Section a-a

DRAWN A.F.
REVIEWED E.L.

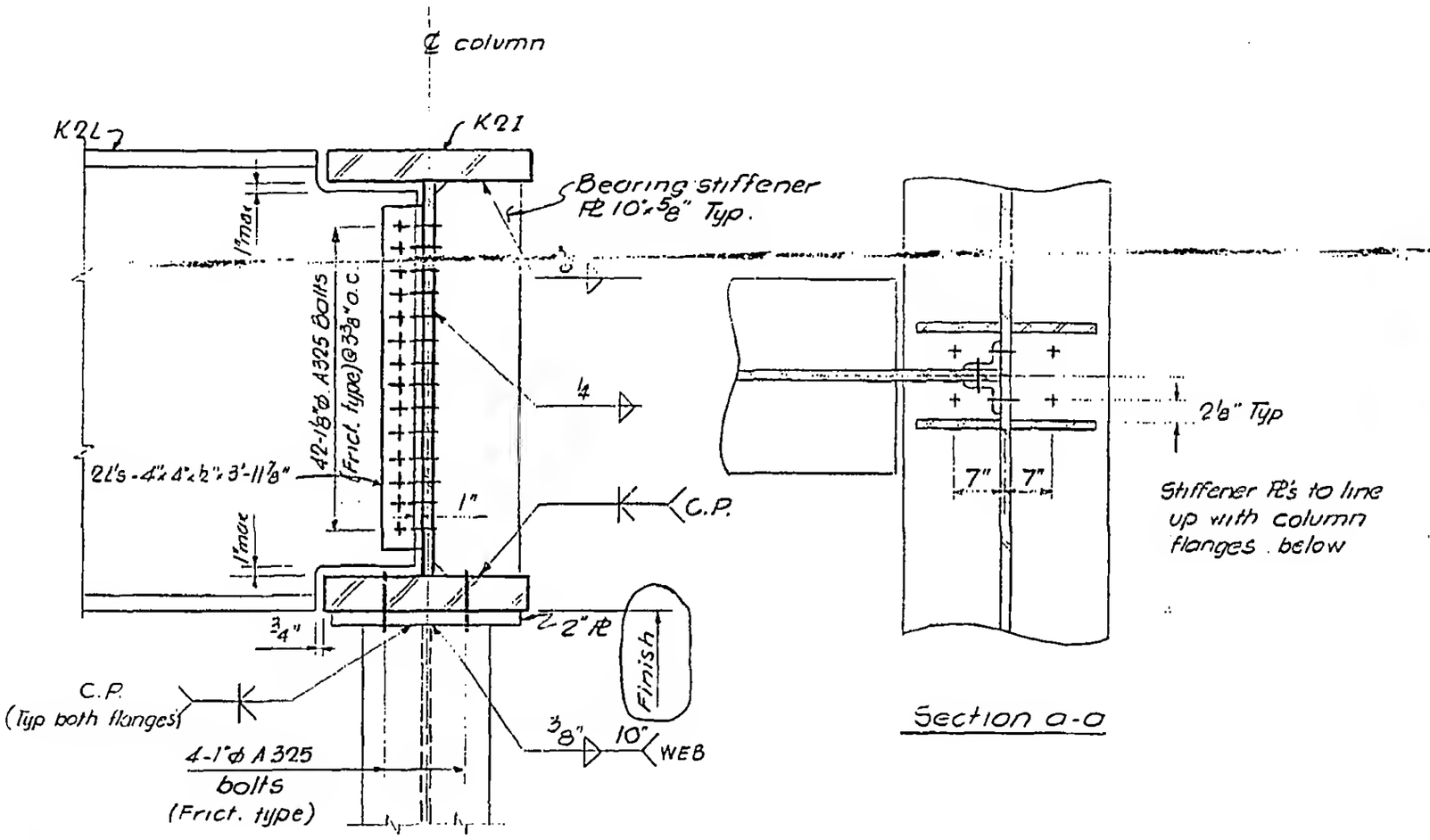
12-JK2-138

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PROJECT THE WORLD TRADE CENTER | TITLE GIRDER CONNECTION DETAIL | DATE 6-7-68

REVISIONS

6-28-68



Section a-a

Note: Some stiffeners omitted from elevation From clarity. See Sect. a-a

LICENSED PROFESSIONAL ENGINEER
LESLIE E. ROBERTSON
No. 34360
UNIVERSITY OF THE STATE OF NEW YORK

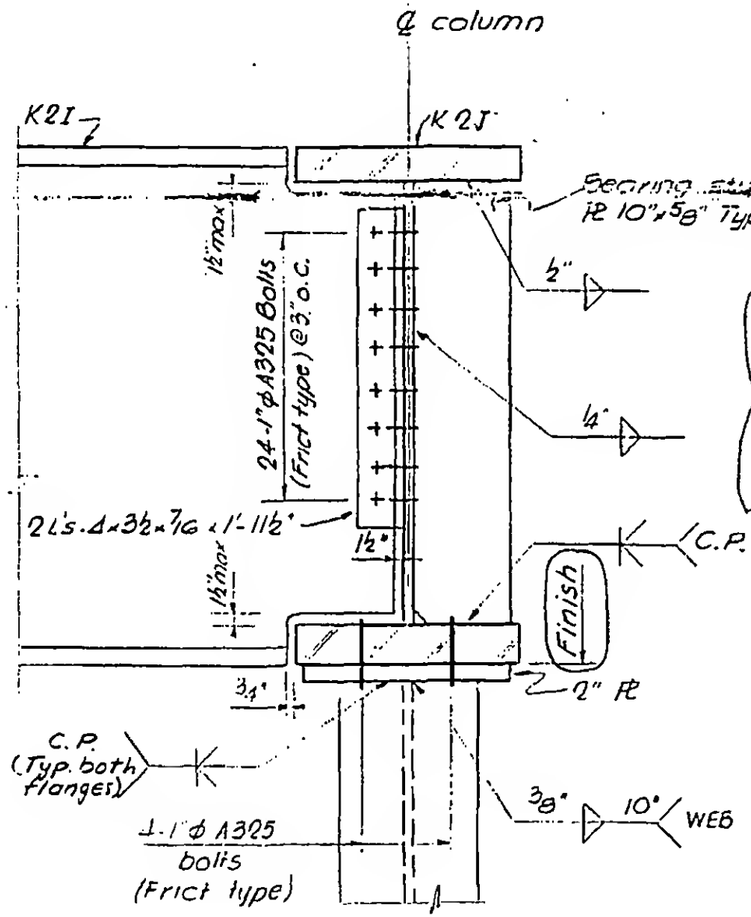
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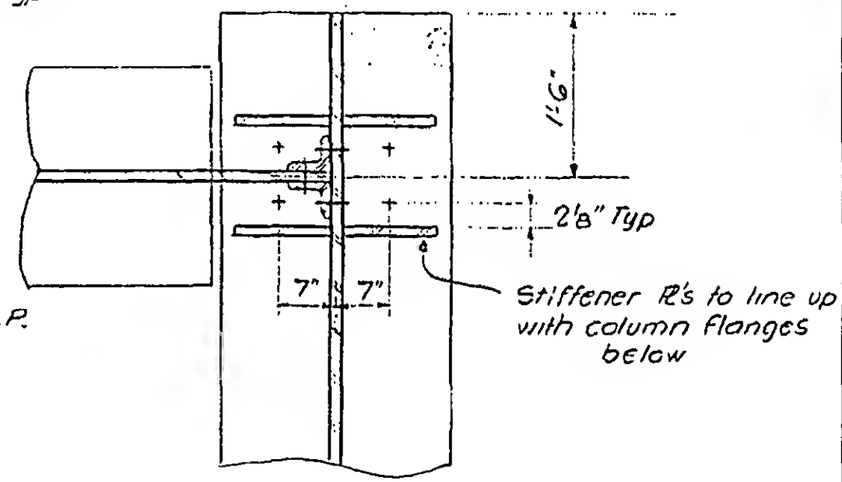
SKILLING - HELLE - CHRISTIANSEN - ROBERTSON Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE GIRDER CONNECTION DETAIL | DATE 6-7-68

REVISIONS

6-28-68





Section a-a

Note: Some stiffeners omitted from elevation for clarity. See Sect. a-a.

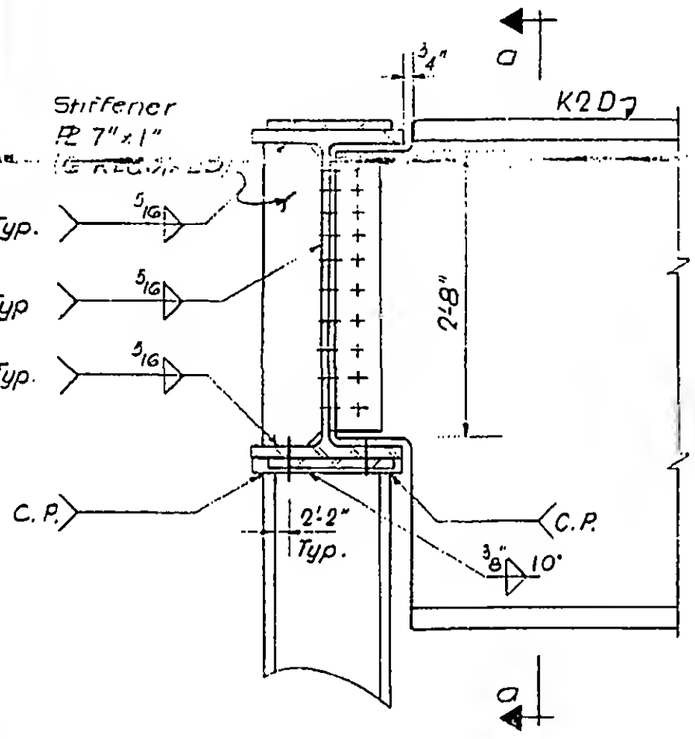
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12-JK2-140

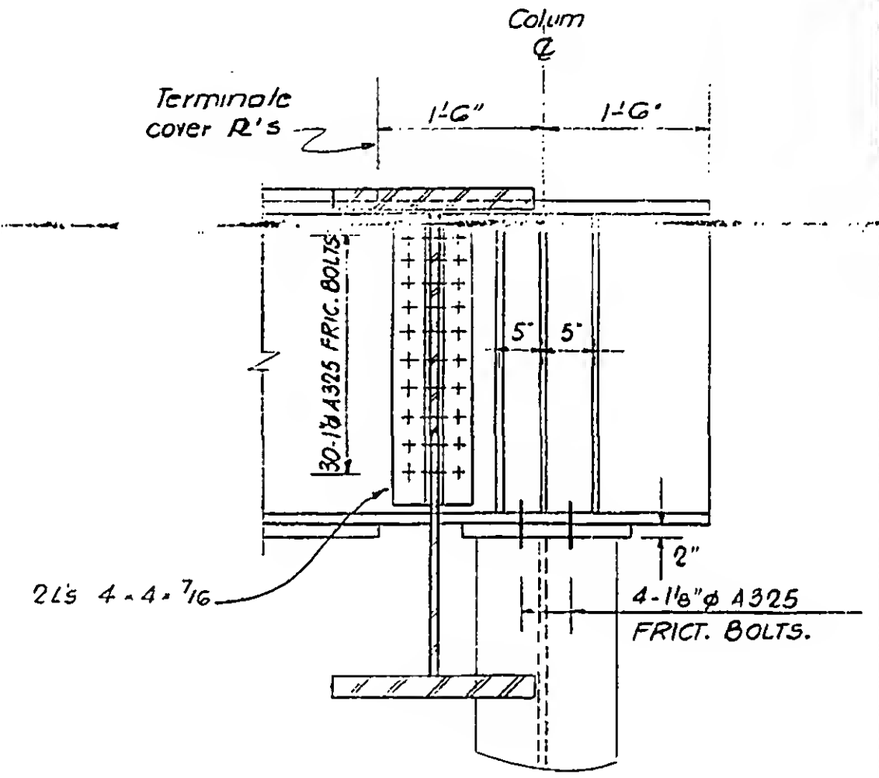
SKILLING - HELLE - CHRISTIANSEN - ROBERTSON Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE GIRDER CONNECTION DETAIL | DATE 6-7-68

REVISIONS



Elevation



Section a-a

Note : Some stiffeners omitted from elevation for clarity

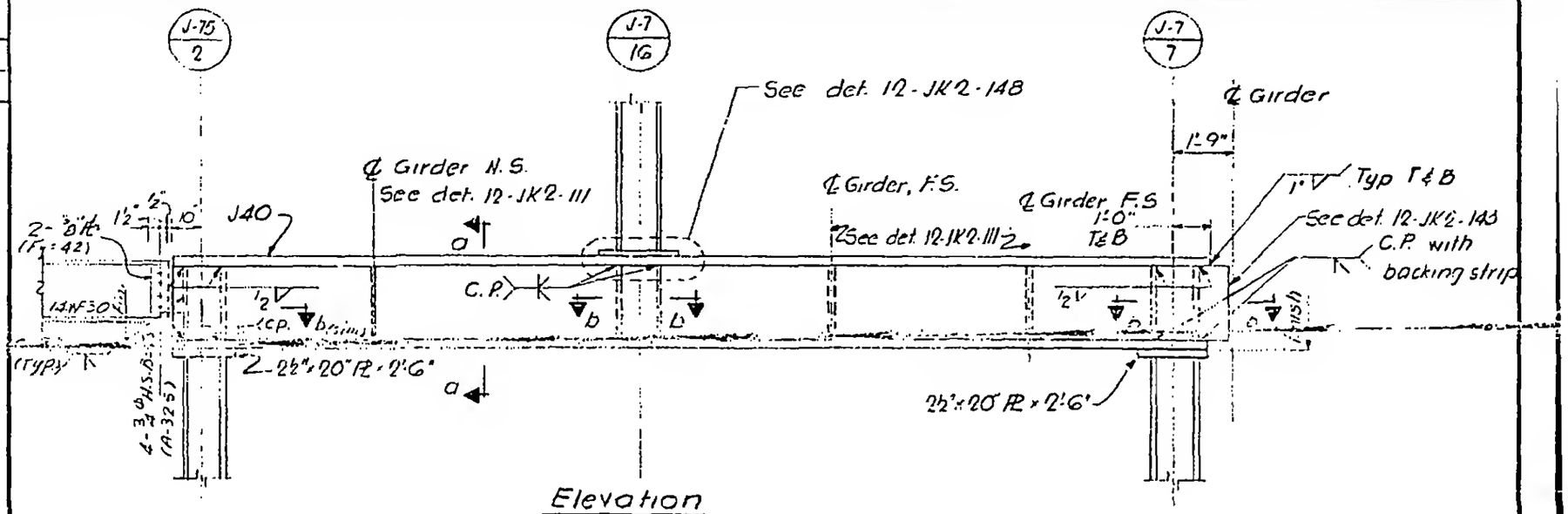
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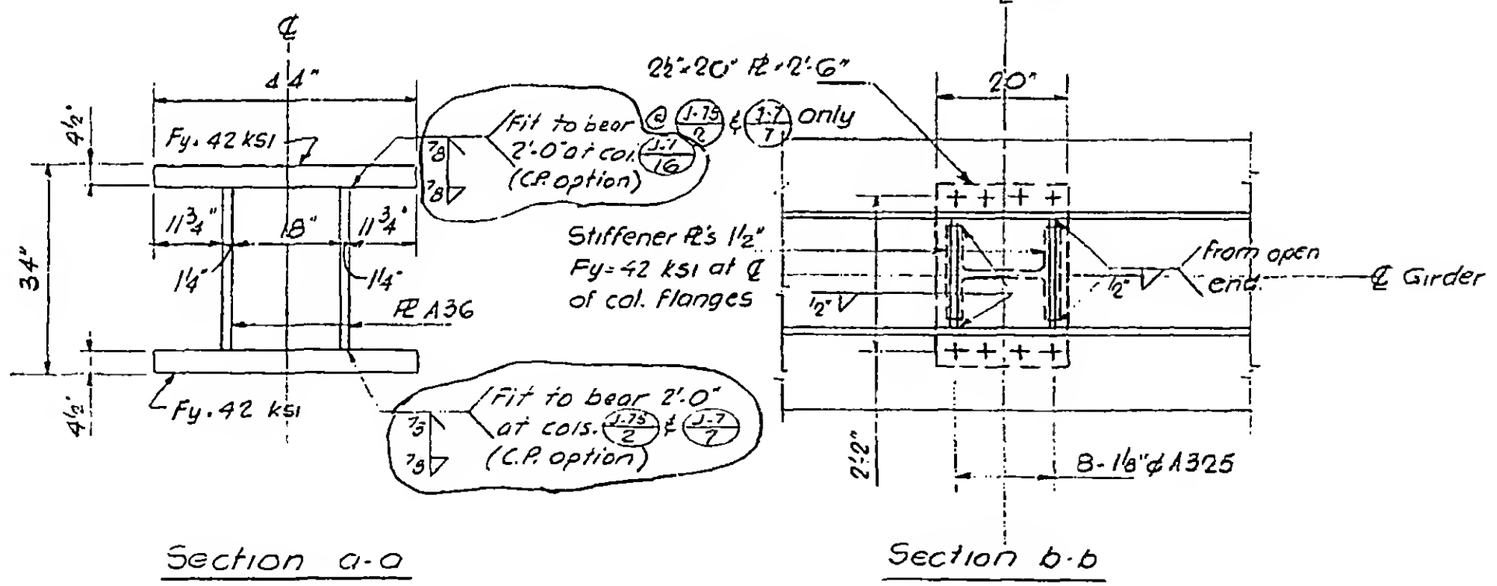
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PROJECT THE WORLD TRADE CENTER | TITLE PLATE GIRDER J4-0 DETAILS | DATE 6-7-68

REVISIONS
7-19-68
1-8-69



Elevation



Section a-a

Section b-b

Ref. dwgs. SJ-76

12-JK2-142

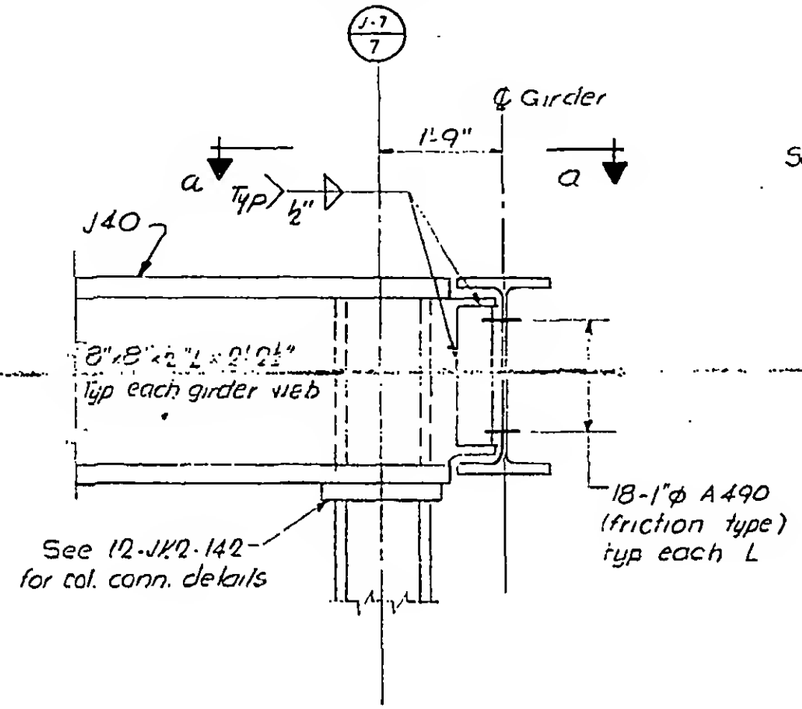
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A.F.
REVIEWED
E.L.

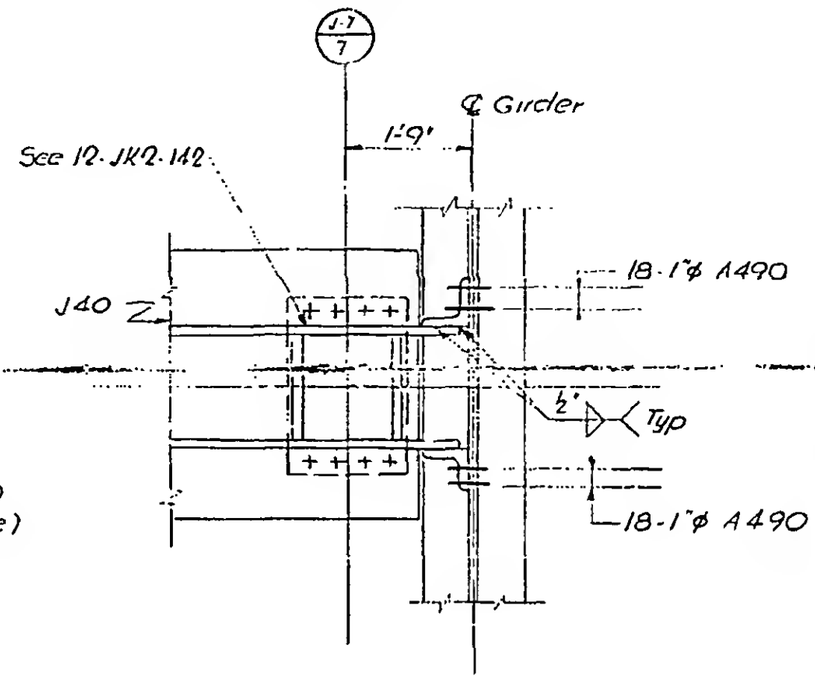
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PROJECT THE WORLD TRADE CENTER | TITLE GIRDER J4-0 CONNECTION DETAIL | DATE 6-7-68

REVISIONS



Elevation Section



Plan - Section a-a



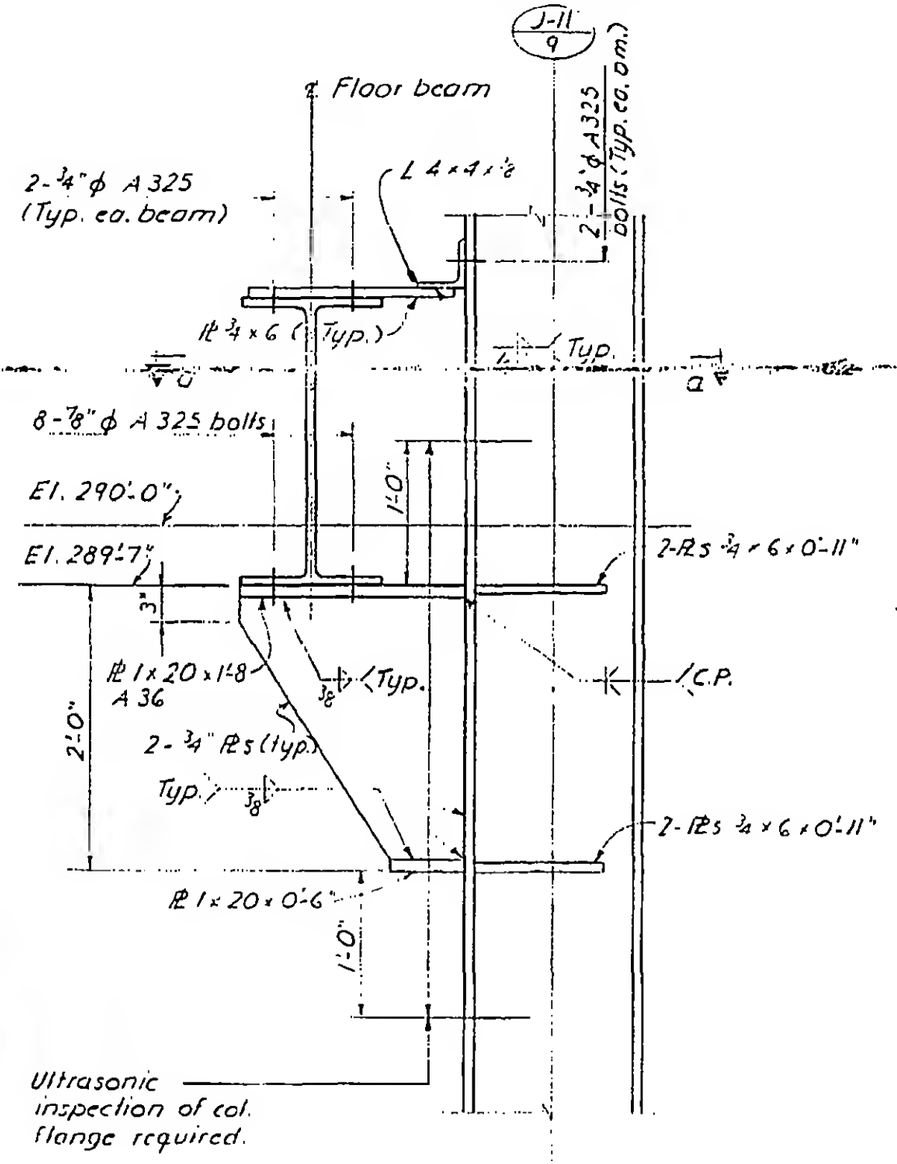
Ref. dwgs: 12-JK2-142, SJ-76

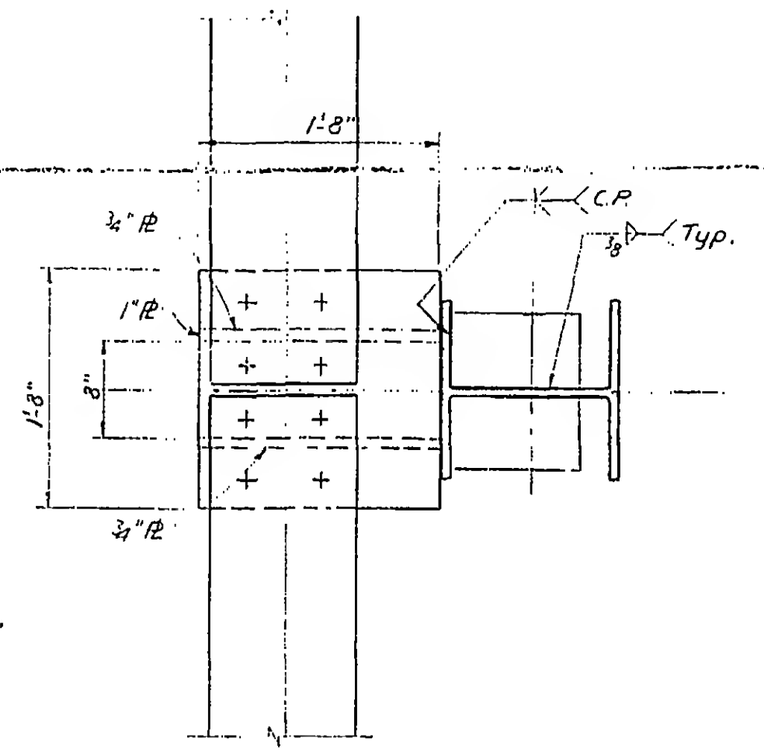
12-JK2-143

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PROJECT THE WORLD TRADE CENTER | TITLE BEAM CONNECTION DETAIL | DATE 6-7-68

REVISIONS





Section a-a



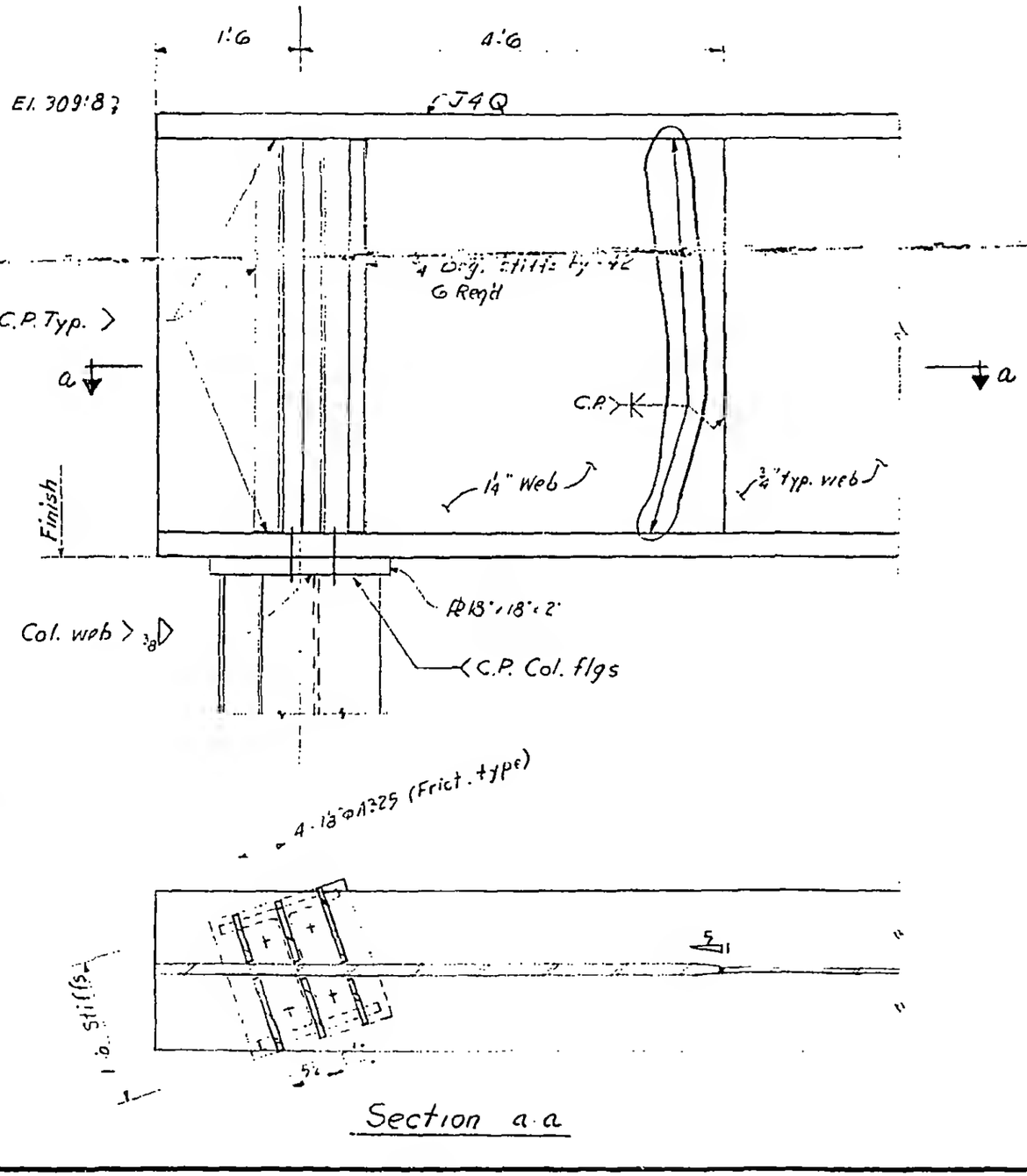
12-JK2-144

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PROJECT THE WORLD TRADE CENTER | TITLE GIRDER CONNECTION DETAIL | DATE 9-4-68

REVISIONS

1-8-69



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DESIGNED

DRAWN A.F.

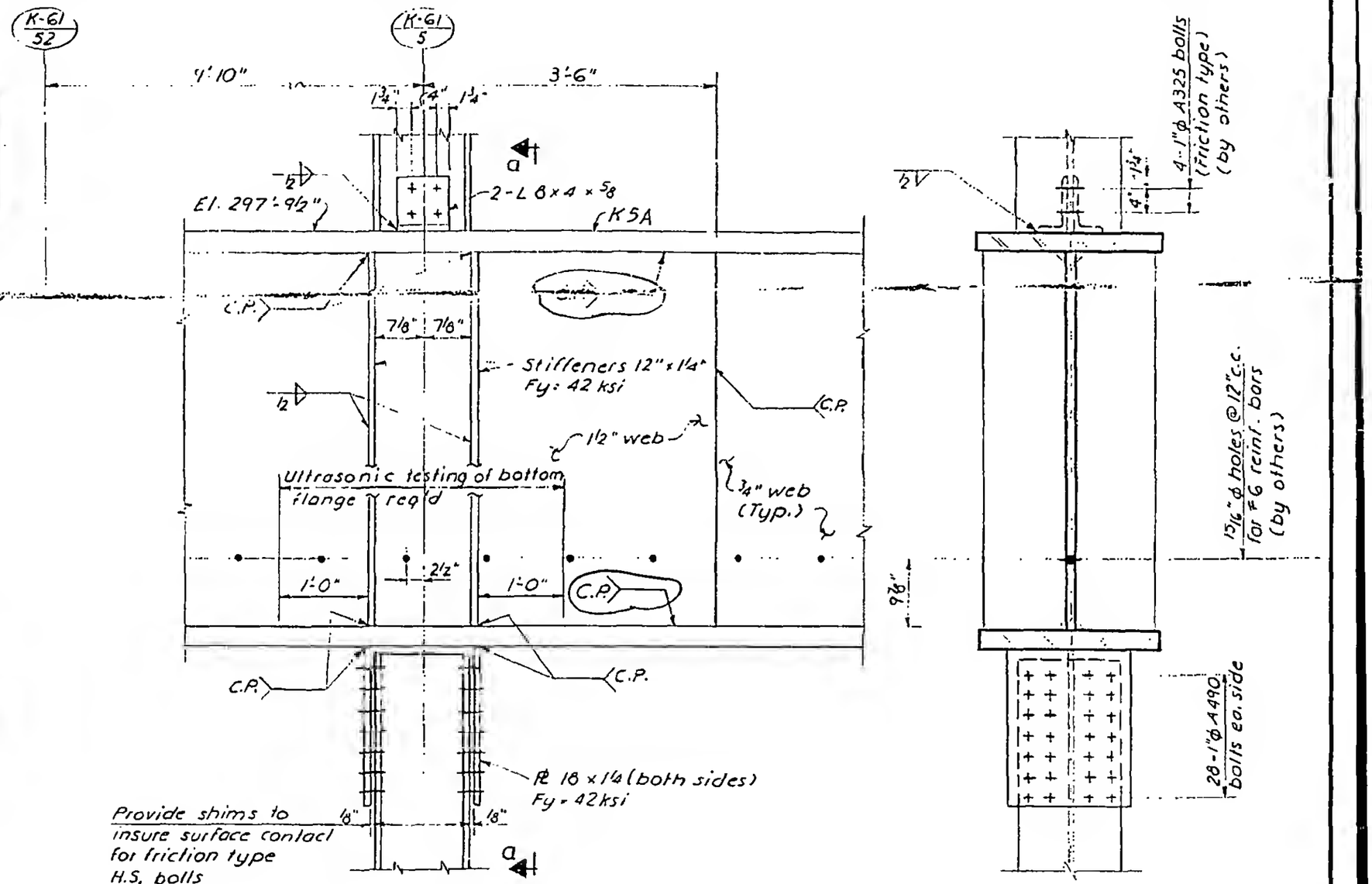
REVIEWED E.L.

12-JK2-145

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PROJECT: THE WORLD TRADE CENTER | TITLE: DETAIL OF PLATE GIRDER | DATE: 9-1-68

REVISIONS
1-8-69



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DRAWN
A.F.

REVIEWED
E.L.

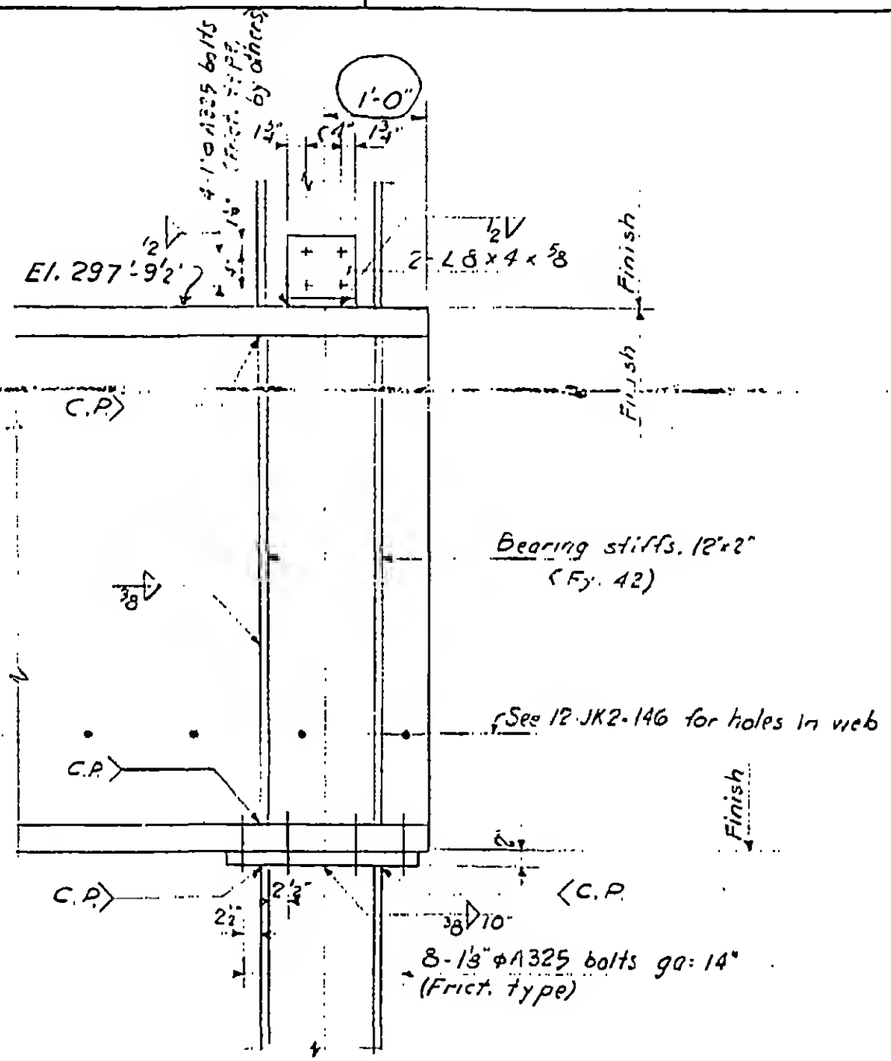
12-JK2-146

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PROJECT THE WORLD TRADE CENTER | TITLE DETAIL OF PLATE GIRDER | DATE 9.4.68

REVISIONS

10-15-68



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12-JK2-147

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PROJECT THE WORLD TRADE CENTER | TITLE COLUMN CONNECTION DETAIL | DATE 5-1-68

REVISIONS

9-4-68

Columns under 'C' designation, by others. See plan for exact orientation

2 Ls 8x4x½ x 0'-10"

4-1"ϕ A325 bolts (By others)

Shim

Finish

Finish

7/16

Bearing stiffeners 12"x2" A36 (Typ.)

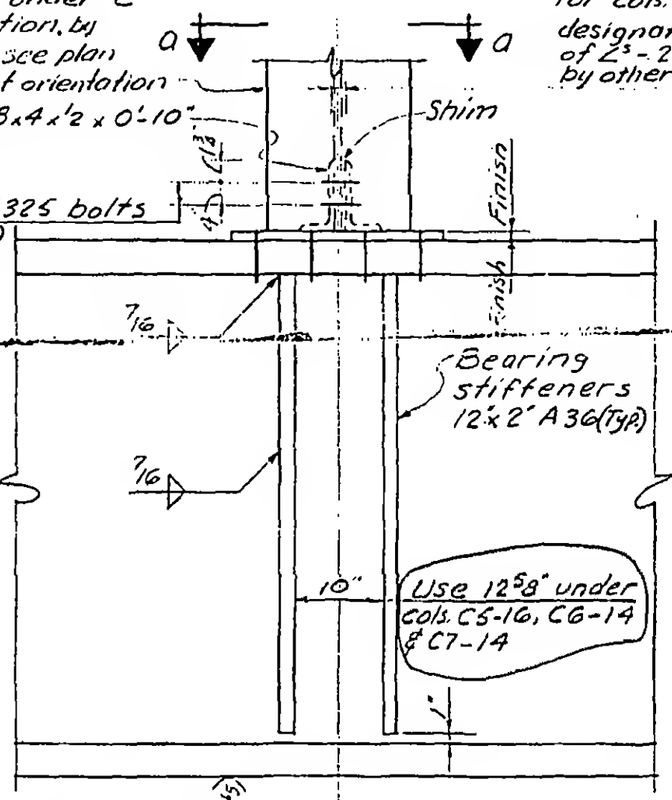
7/16

10"

Use 12 ⅞" under cols. C5-16, C6-14 & C7-14

1"

a a



13/16" before finishing

Fin. ¼" (After tightening bolts)

90°

Top of bolt

5/16"

Detail 1

For cols. under 'C' designation, B. to B. of Ls - 2'-2" (shim Rs by others)

Typ. 7/16

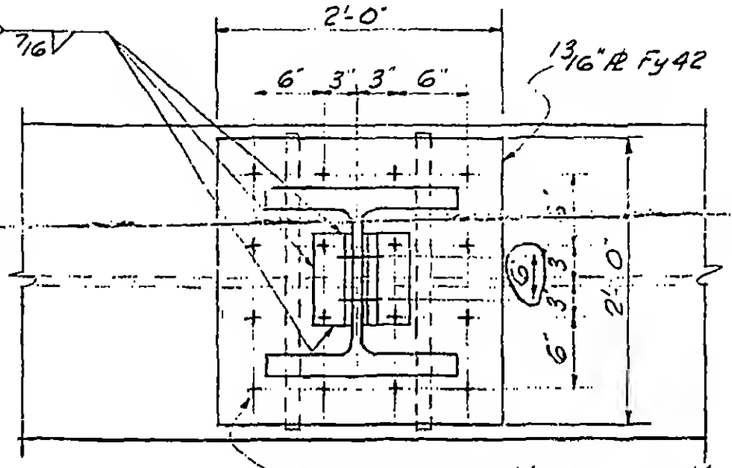
2'-0"

6" 3" 3" 6"

13/16" R Fy 42

2'-0"

6" 3" 3"



C50L High tensile huck bolts ⅞" ϕ (90° countersunk) see Det 1. Bolts to be tightened from one end of R toward the other to insure surface contact between Rs.

Section a-a

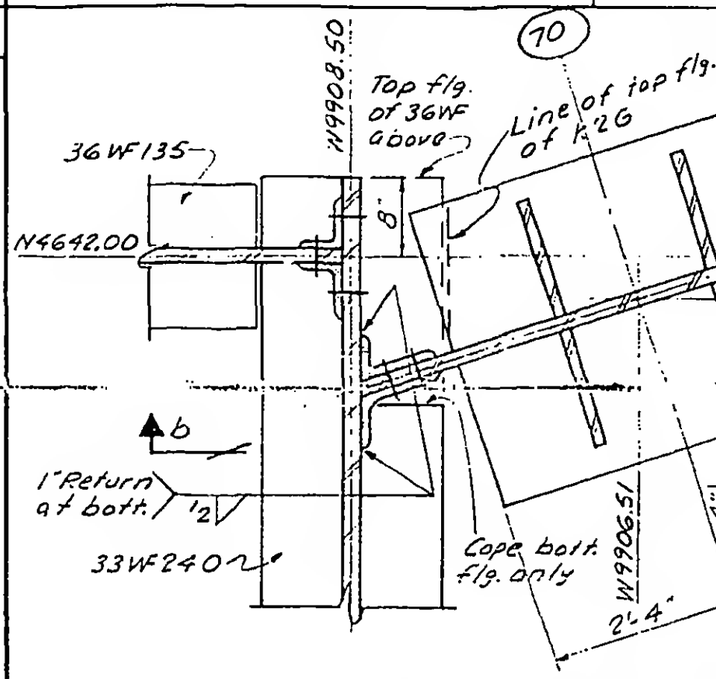
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12-JK2-148

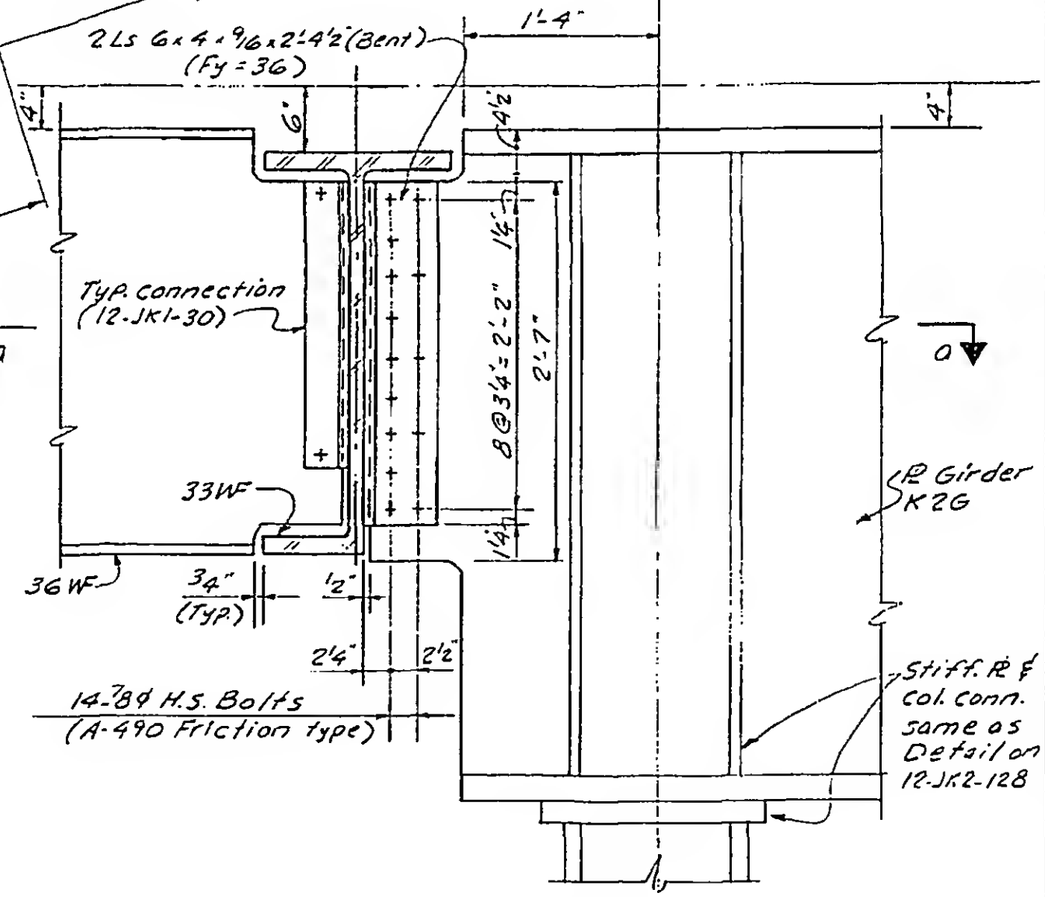
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PROJECT: THE WORLD TRADE CENTER | TITLE: GIRDER CONNECTION DETAILS | DATE: 10-15-68

REVISIONS



Section a-a



Section b-b

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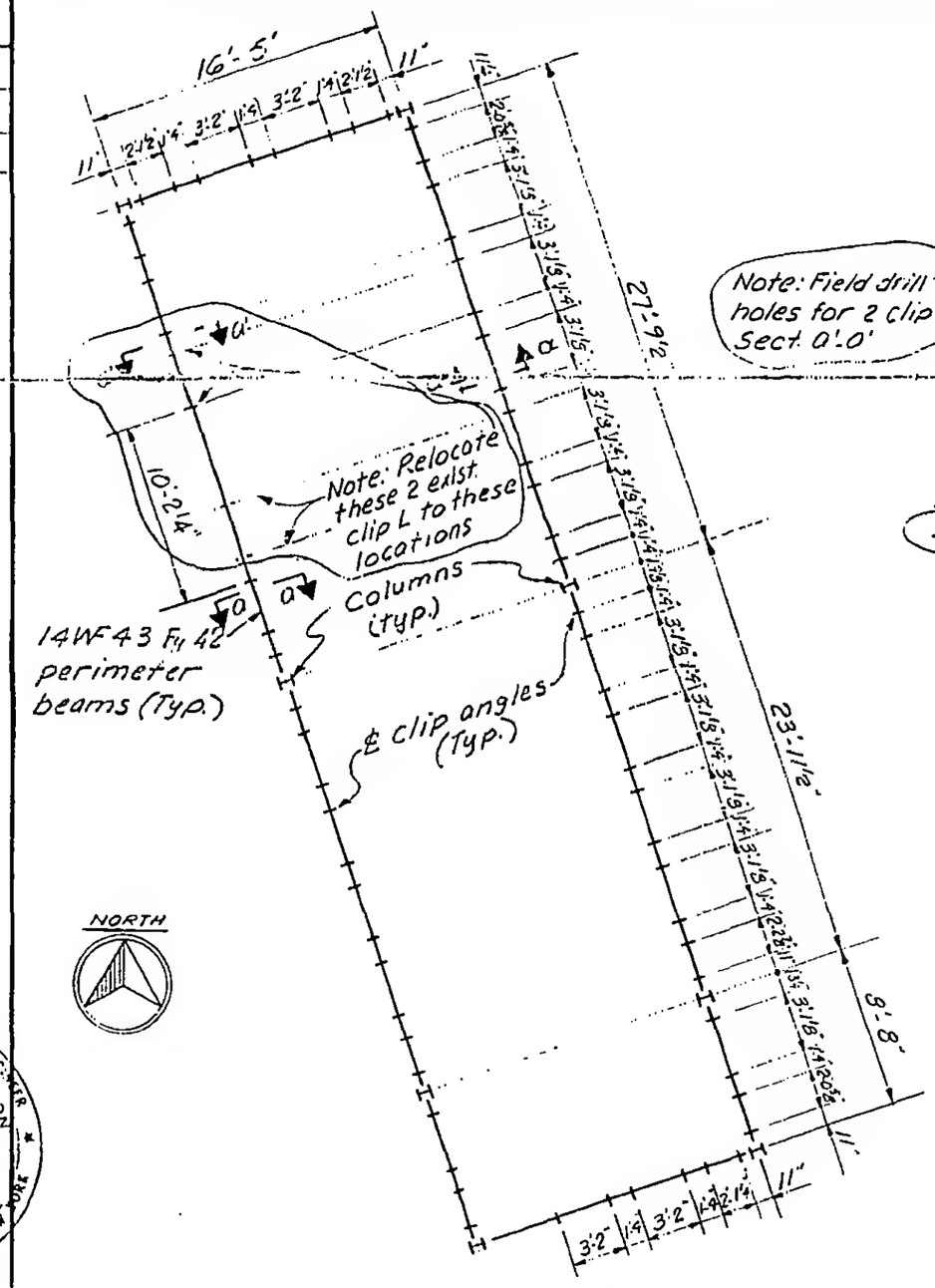
REVIEWED

12-JK2-149

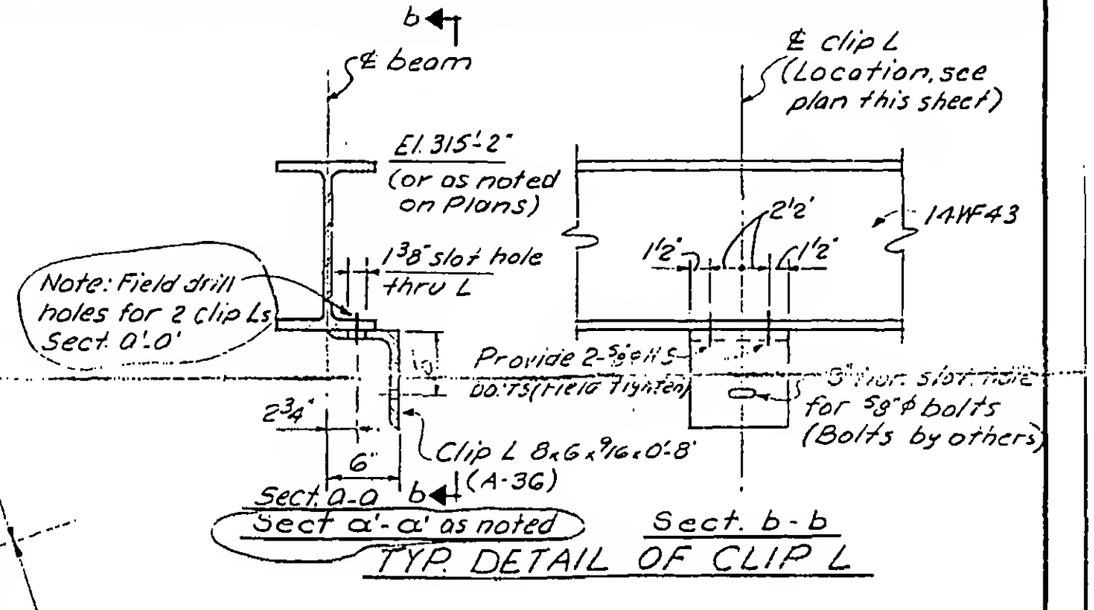
SKILLING - HELLE - CHRISTIANSEN - ROBERTSON Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE NORTH PROJECTION EXHAUST HOUSING DETAILS | DATE 4-5-68

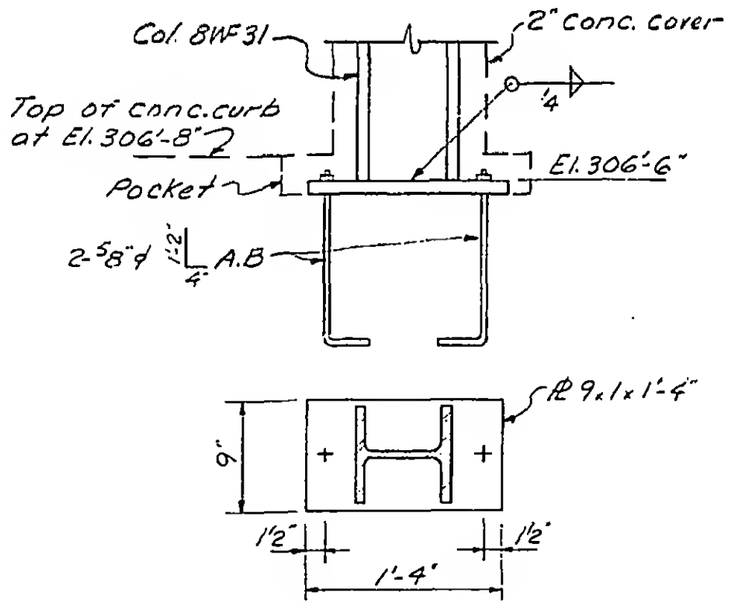
REVISIONS
5-1-68
6-6-69
5-12-71



LOCATION OF CLIP Ls



TYP. DETAIL OF CLIP L



TYP. DETAIL OF COLUMN & BASE PL

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DRAWN S.C.
REVIEWED E.L.

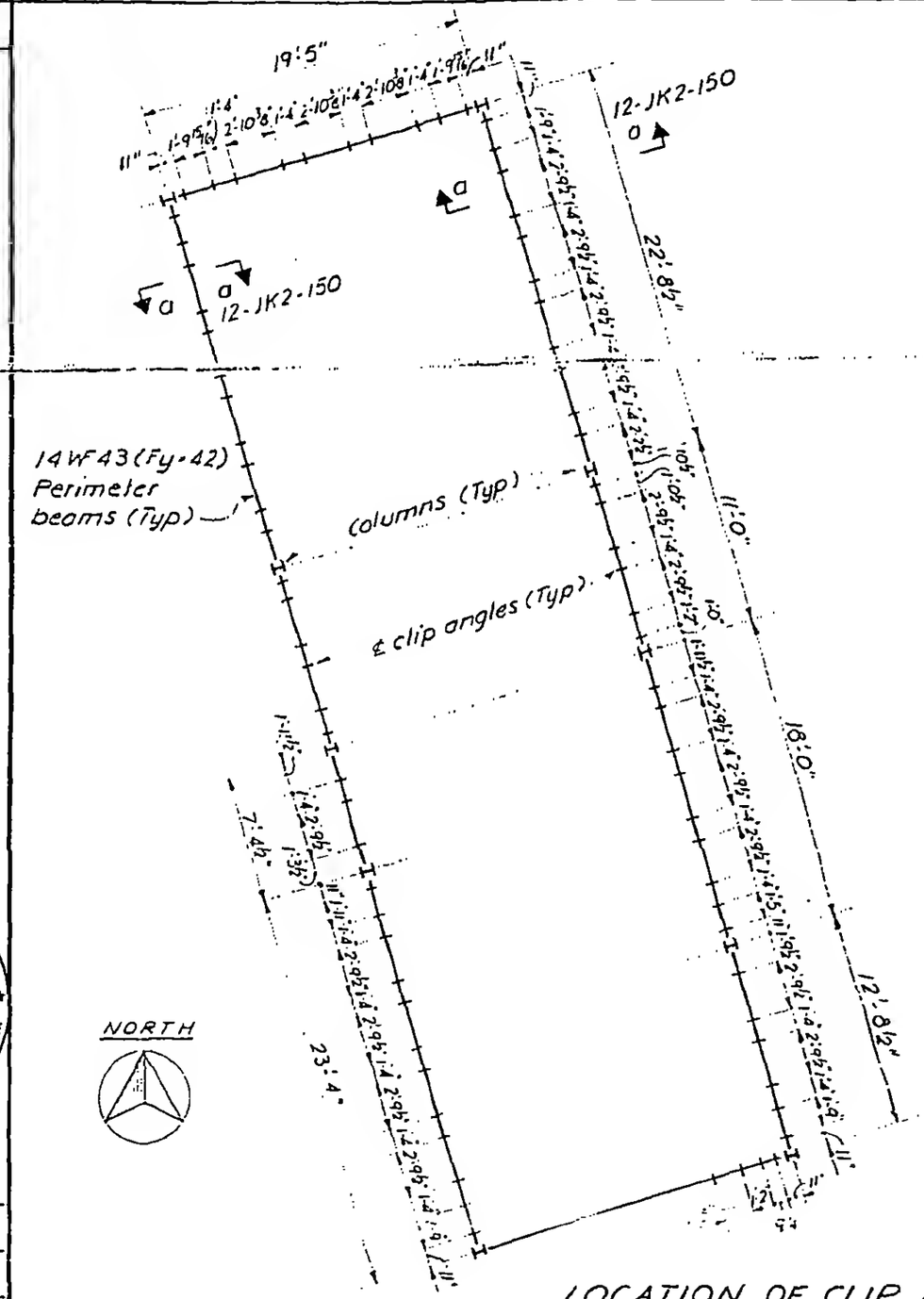
12-JK2-150

3-27-68

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PROJECT: THE WORLD TRADE CENTER | TITLE: SOUTH PROJECTION - EXHAUST HOUSING | DATE: 6-6-69

REVISIONS



LOCATION OF CLIP Ls

Notes:

1. See 12-JK2-150 for detail of clip Ls under perimeter beams and detail of columns.

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DRAWN: F. Smith

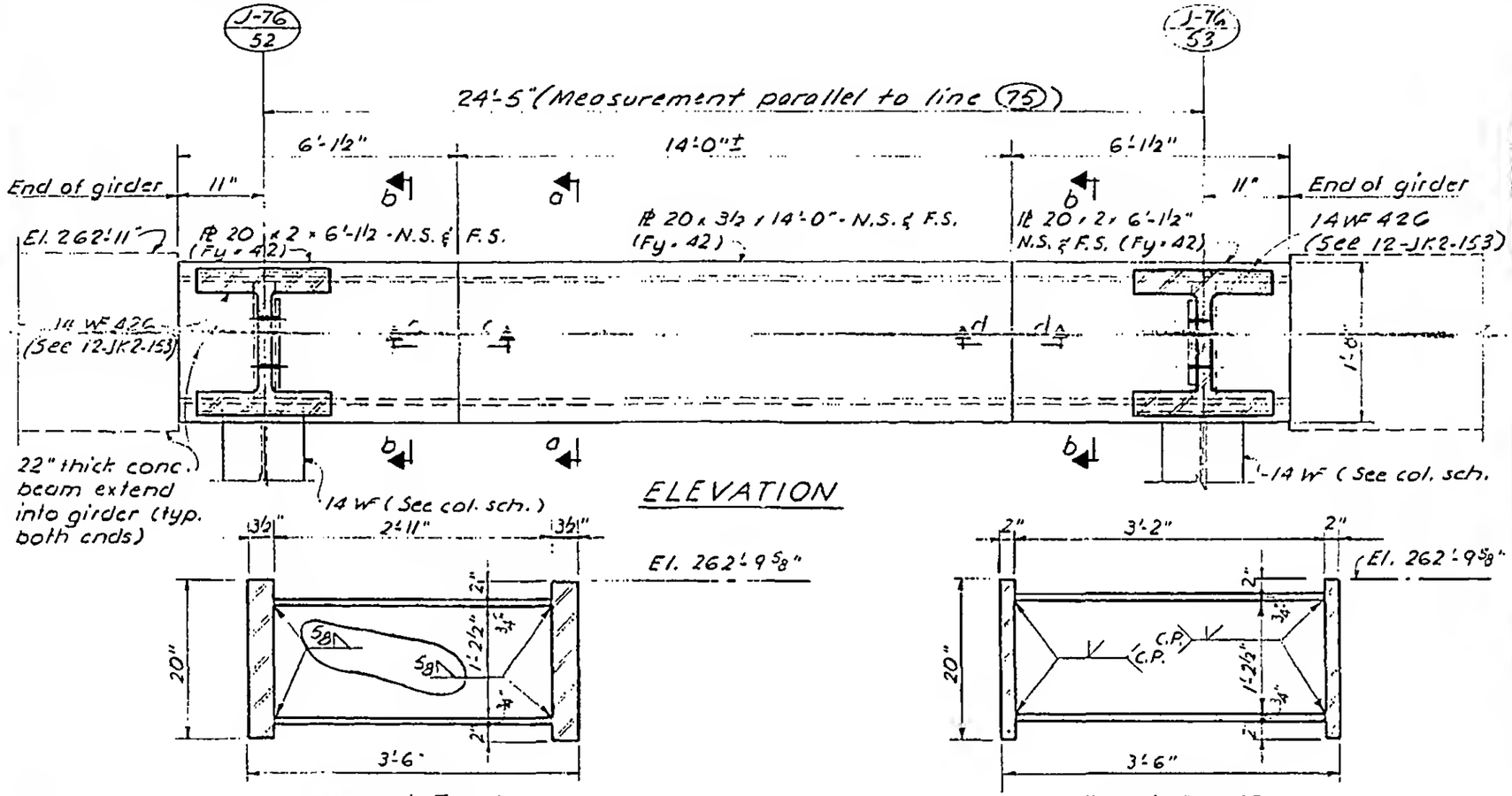
REVIEWED: E.L.

12-JK2-151

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PROJECT THE WORLD TRADE CENTER | TITLE DETAIL OF PLATE GIRDER | DATE 9-13-68

REVISIONS
1-8-69



Notes:
1. All welds to be E 70xx.
2. All bolts to be A-325 friction type.
3. See dwg. 12-JK2-153 for connection of 14 WF 426 to girder.

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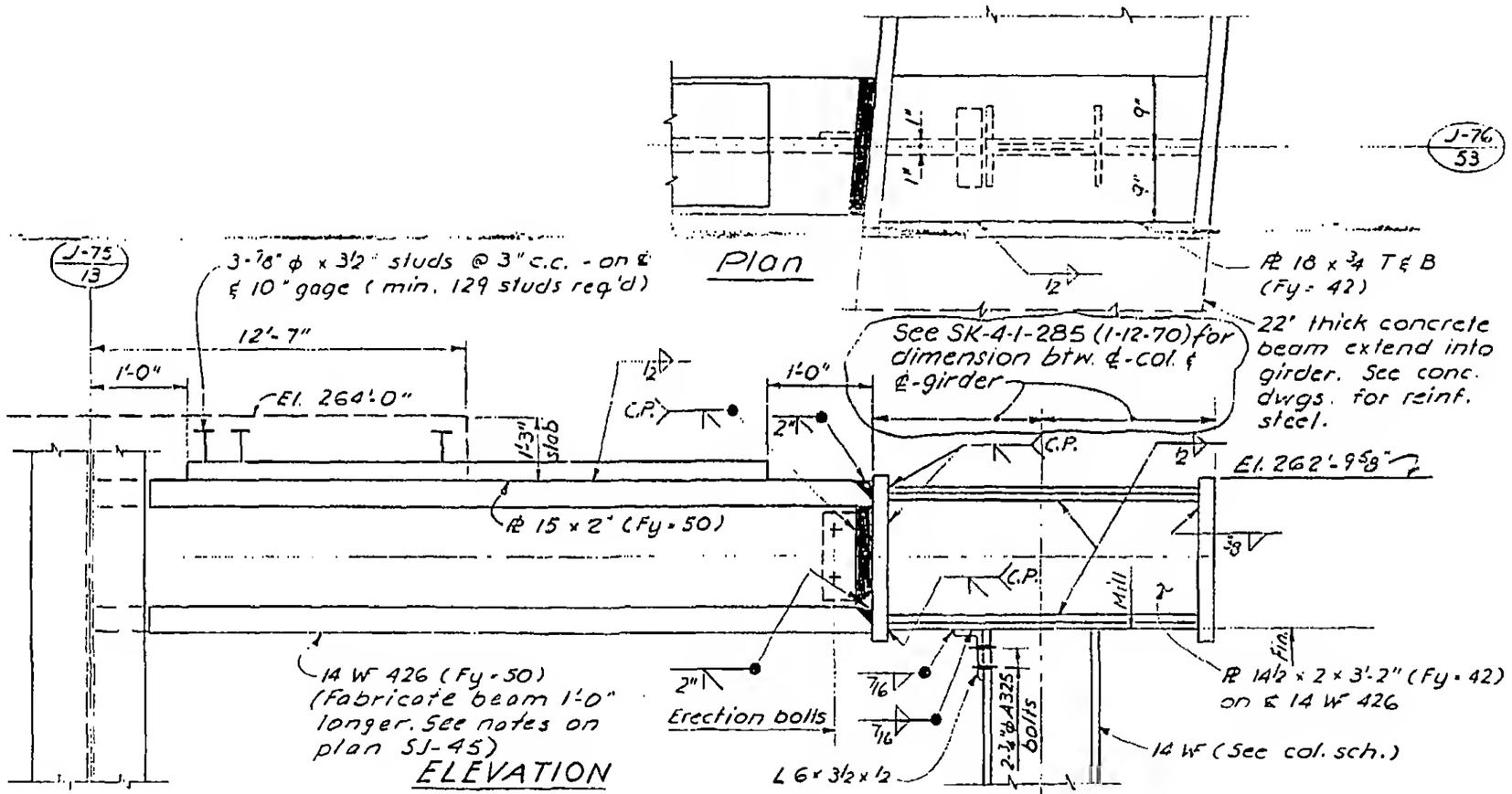
DRAWN A.F.
REVIEWED E.L.

12-JK2-152

SKILLING, HELLE, CHRISTIANSEN, ROBERTSON — Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE DETAIL OF BEAMS ADJACENT TO ESCALATOR | DATE 9-13-68

REVISIONS
5-29-69
2-11-70



Notes:
1. All welds to be E 70xx
2. All bolts to be A-325 friction type.
3. See dwg. 12-JK2-152 for horizontal girder.
4. See also Dwg SK-4-1-285 (1-12-70), Drawing No. 533.0G1)

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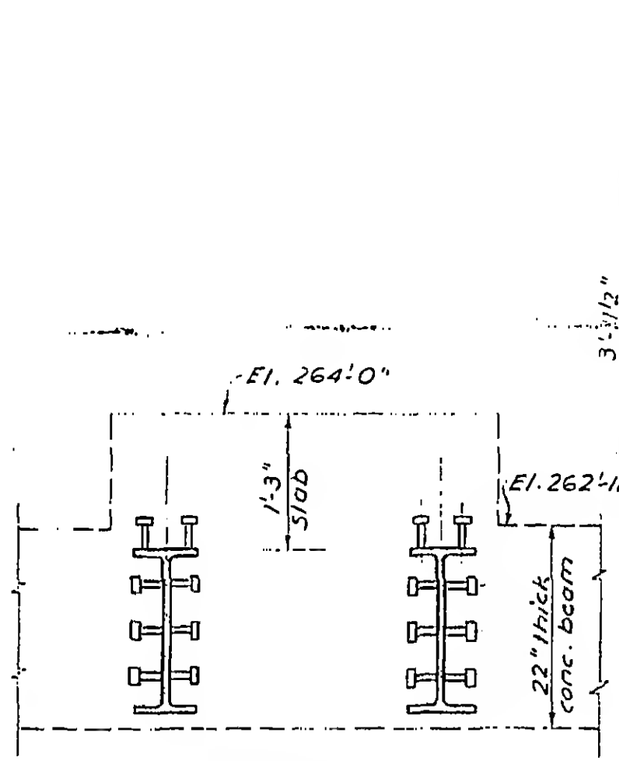
DESIGNED
DRAWN S.C.
REVIEWED E.L.

12-JK2-153

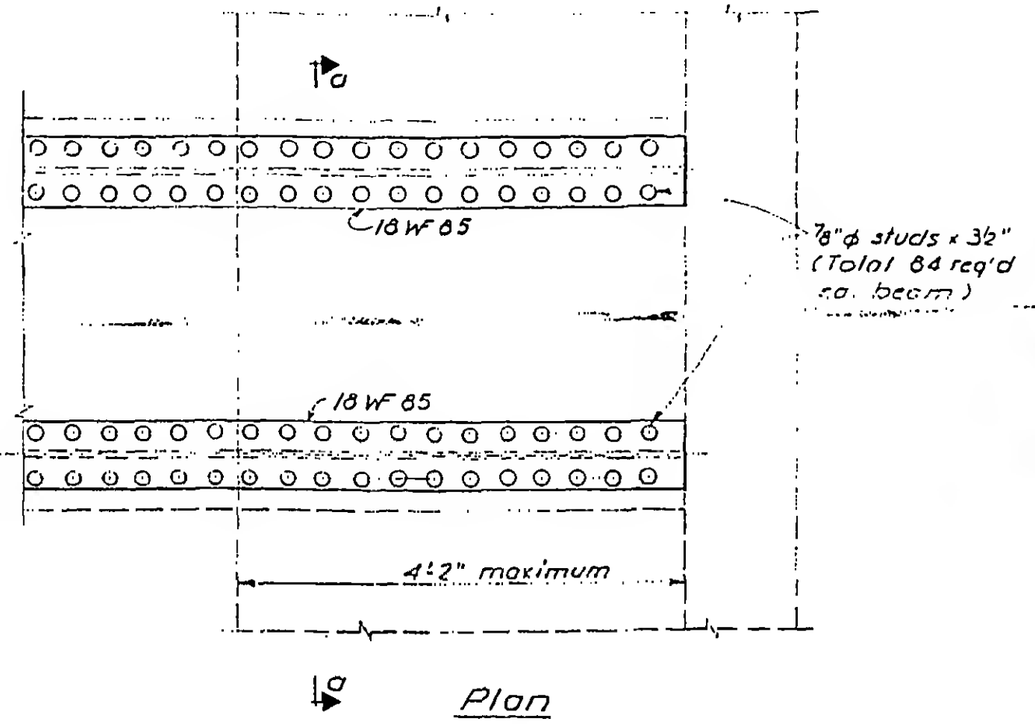
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PROJECT: THE WORLD TRADE CENTER | TITLE: DETAIL OF BEAMS ADJACENT TO STAIRWAY | DATE: 9-13-68

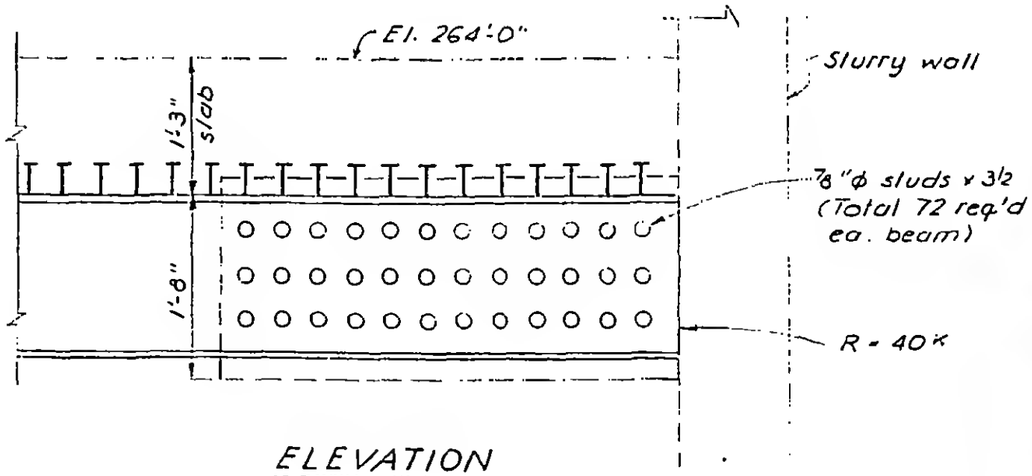
REVISIONS



Section a-a



Plan



ELEVATION

Notes:
1. Fabricate beams one foot longer. See notes on SJ-45.

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DRAWN

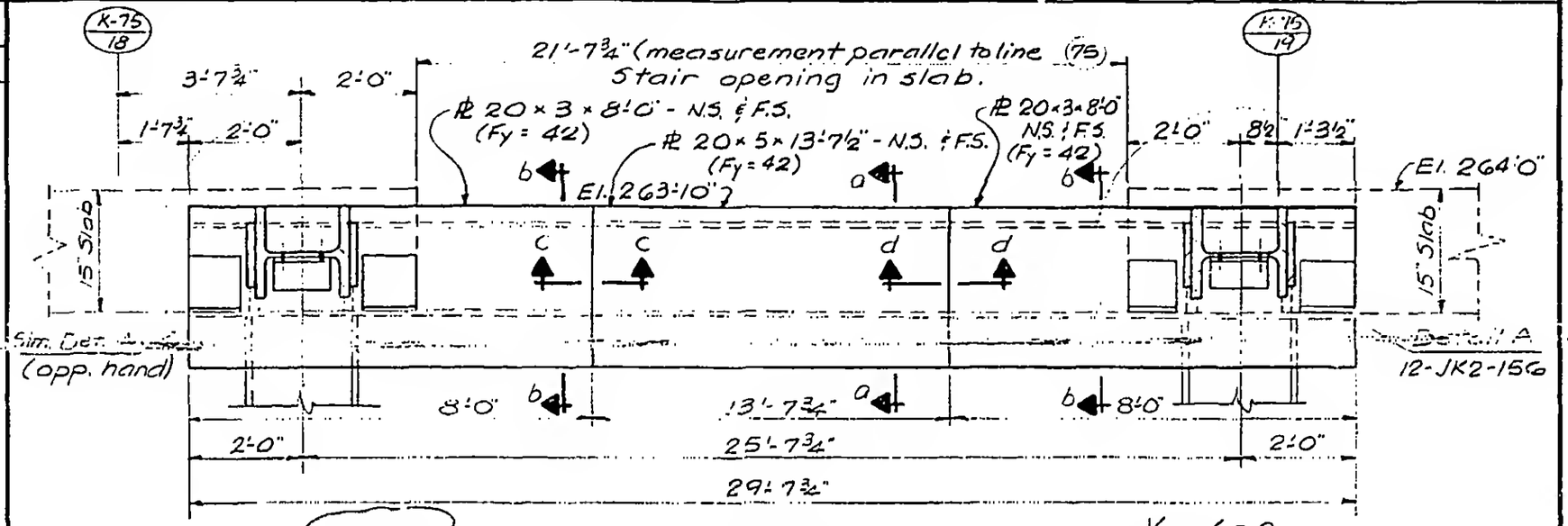
REVISED

12-JK2-154

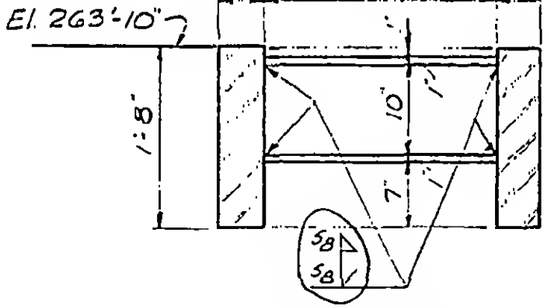
SKILLING, HELLE, CHRISTIANSEN, ROBERTSON — Structural & Civil Engineers

PROJECT: THE WORLD TRADE CENTER | TITLE: DETAIL OF PLATE GIRDER | DATE: 9-13-68

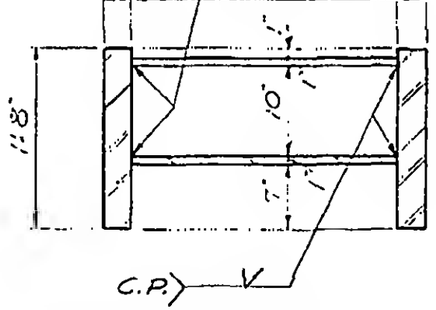
REVISIONS
1-8-69



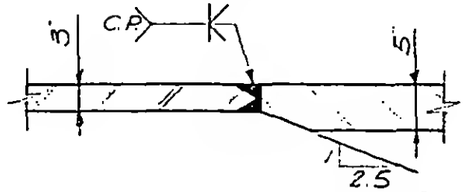
ELEVATION



SECTION a-a
(All material, Fy = 42)



SECTION b-b
(All materials, Fy = 42)



SECTION c-c (As shown)

SECTION d-d (Opp. hand)

Notes:
1. All welds to be E 70 XX
2. All bolts to be A325 friction type.

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DRAWN A.F.
REVIEWED E.L.

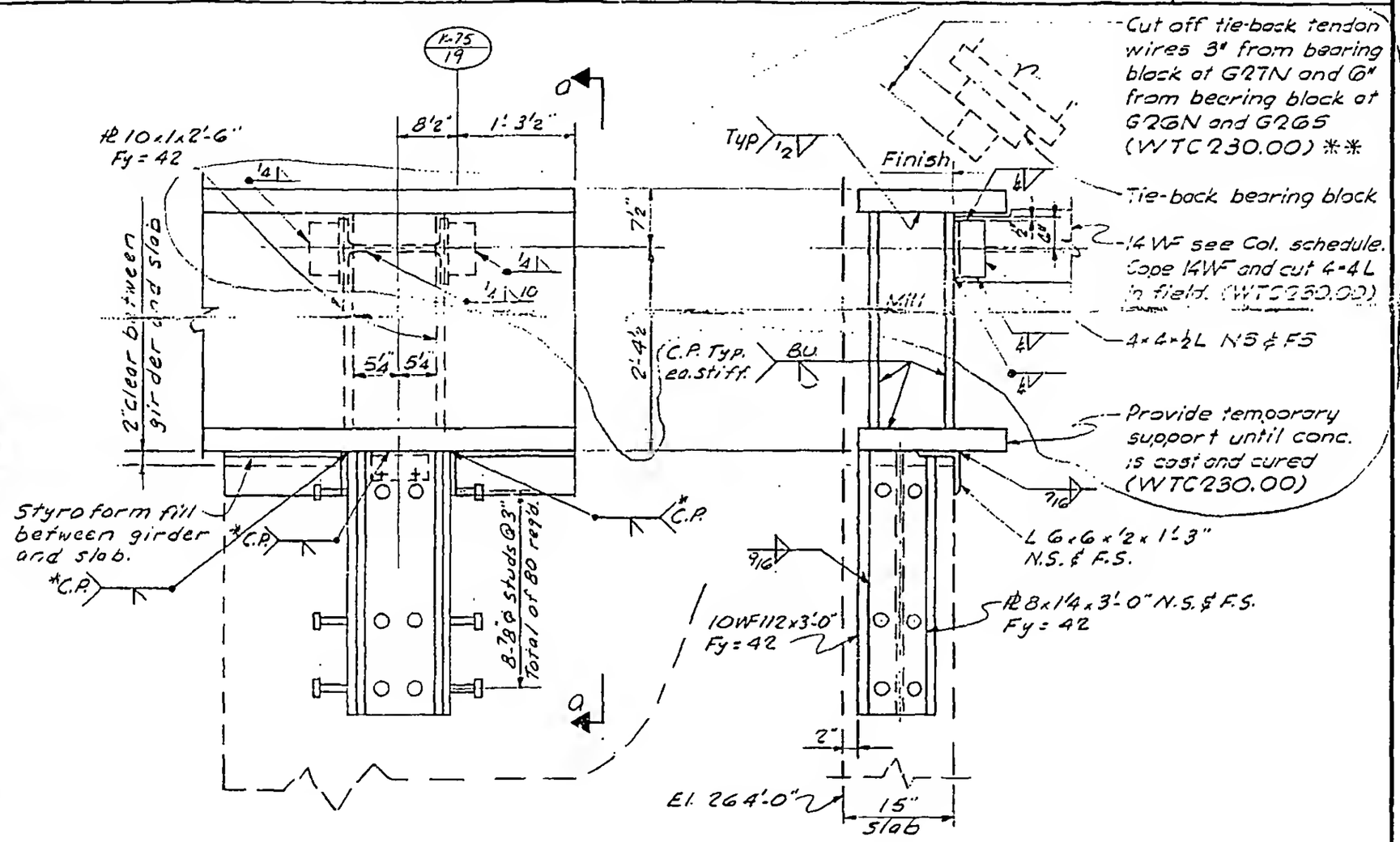
12-JK2-155

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PROJECT: THE WORLD TRADE CENTER | TITLE: DETAIL OF PLATE GIRDER | DATE: 9-13-68

REVISIONS

11-5-69 R



PLAN

Section a-a

* - Shop weld at contractor's option.

** - Cutting procedure shall avoid excess heat in tendon wires.

DETAIL A

Note:
1. All welds to be E70 xx.

DESIGNED

DRAWN S.C.

REVIEWED E.L.

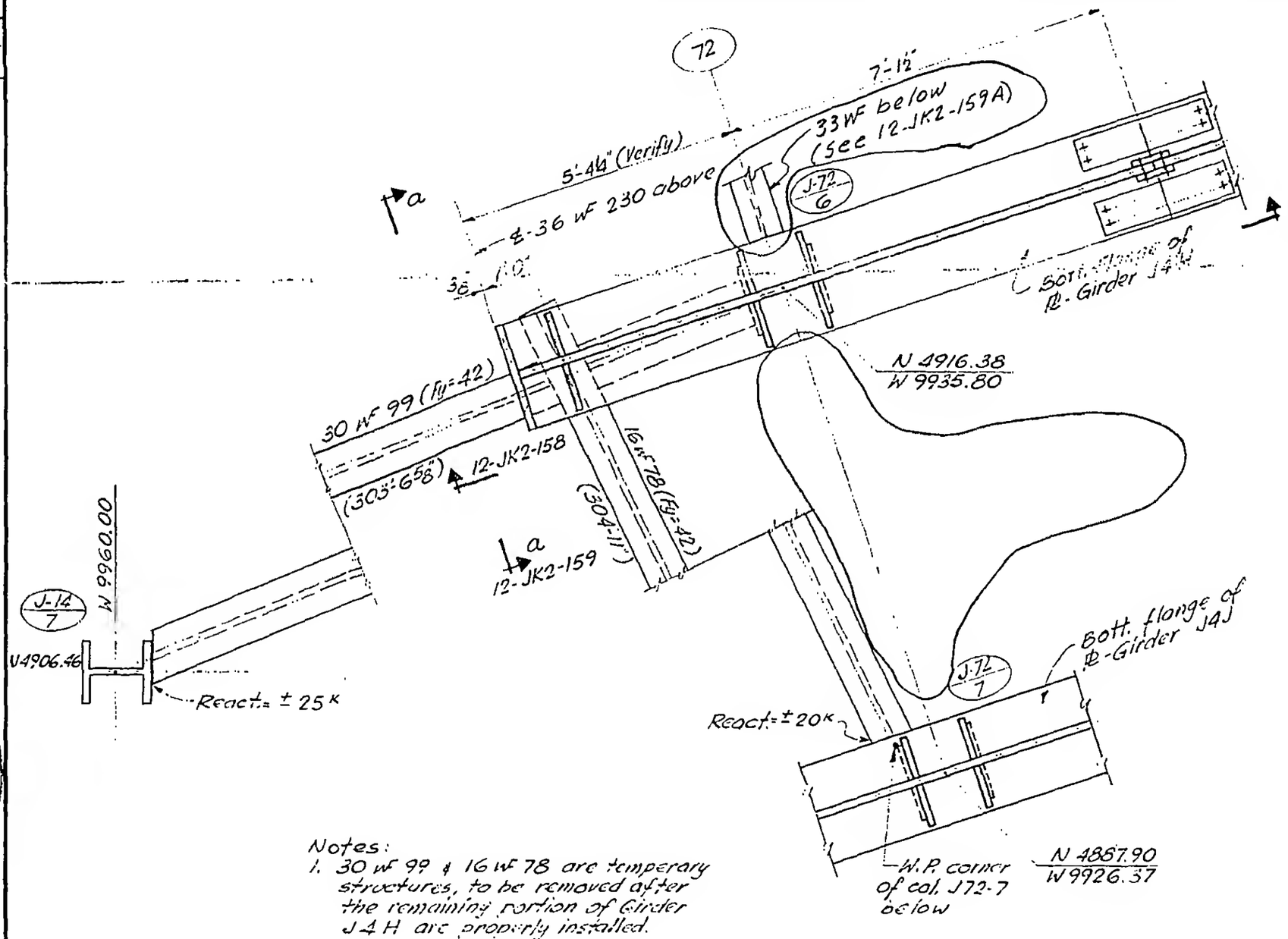
12-JK2-156

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PROJECT THE WORLD TRADE CENTER | TITLE TEMPORARY STRUCTURE | DATE 10-15-68

REVISIONS
11-11-68
12-3-68



Notes:
1. 30 WF 99 & 16 WF 78 are temperary structures, to be removed after the remaining portion of Girder J4H are properly installed.

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DRAWN
REVIEWED

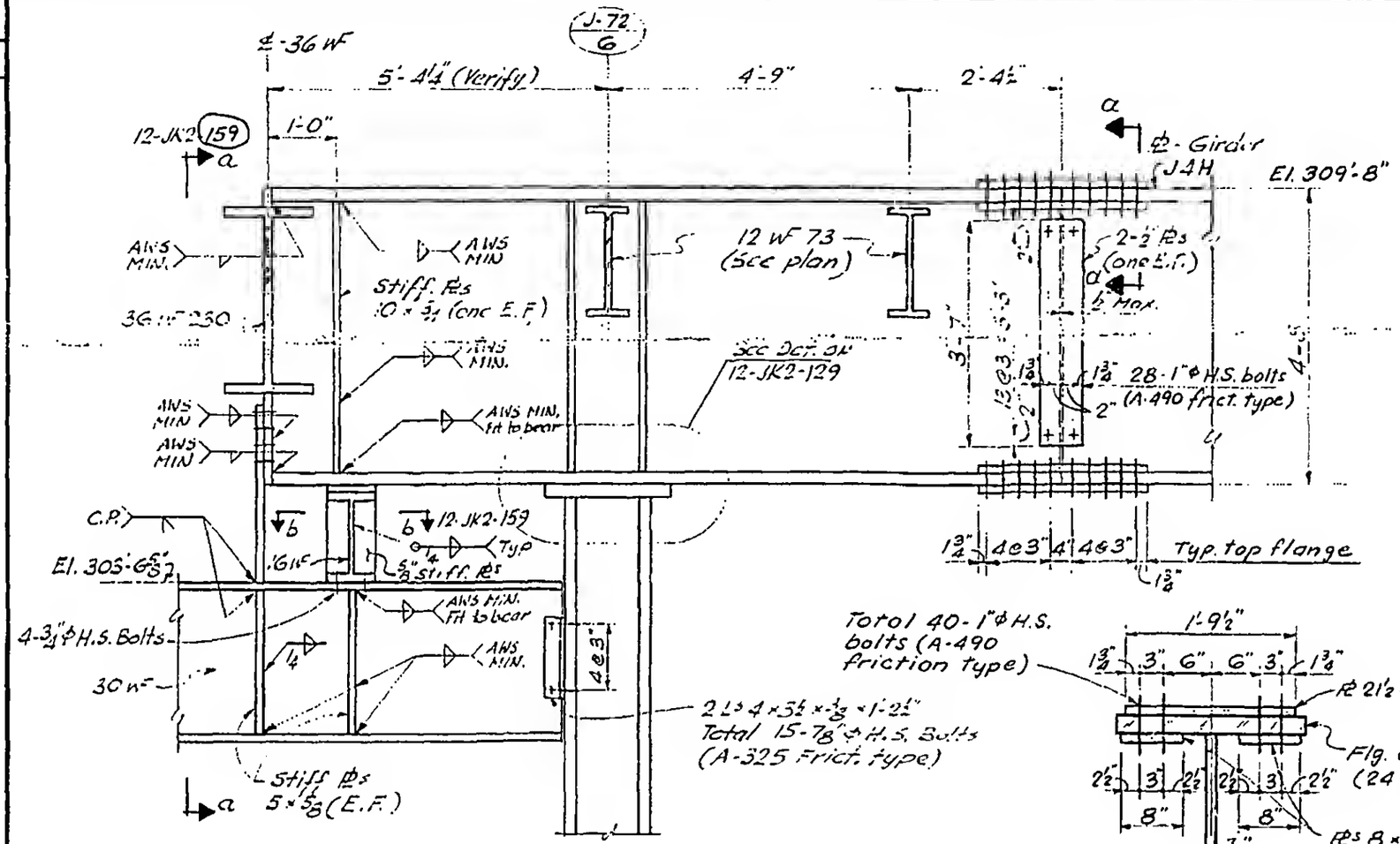
12-JK2-157

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PROJECT: THE WORLD TRADE CENTER | TITLE: TEMPORARY STRUCTURE | DATE: 10-15-68

REVISIONS

1-8-69



Total 40-1" ϕ H.S. bolts (A-490 friction type)

Section a-a
(typ. bottom flange)

Notes:
1. All Rs to have Fy = 42 KSI except as noted.
2. All welds to be E7CXX.

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DRAWN A.F.

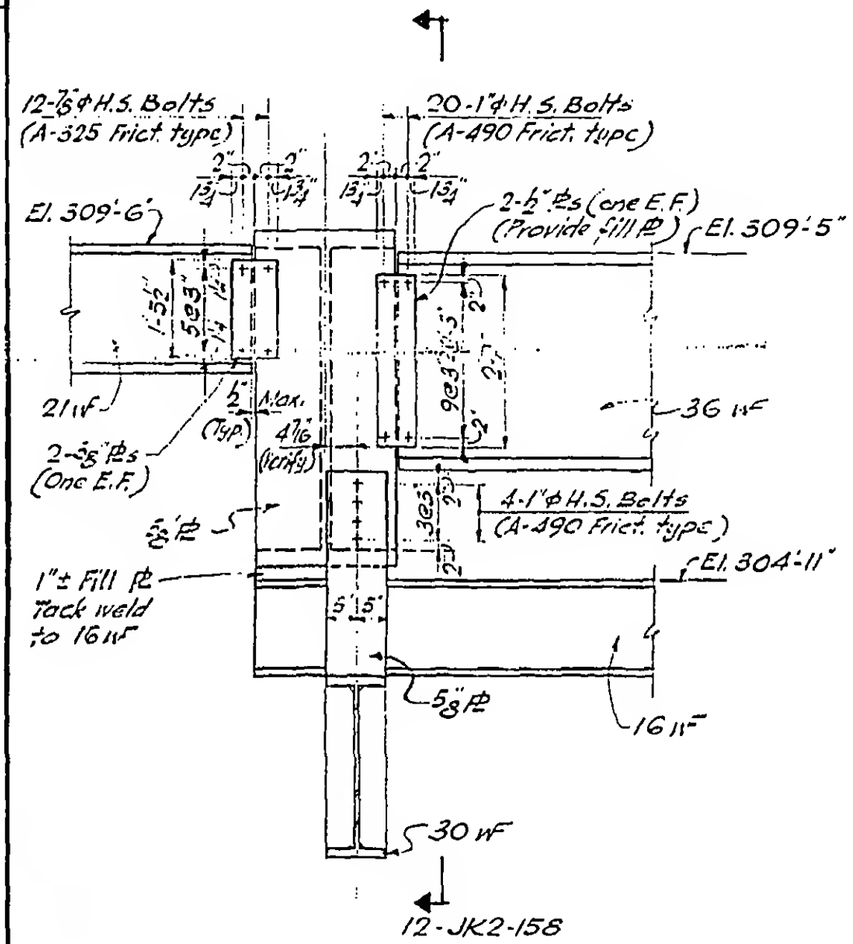
REVIEWED E.L.

12-JK2-158

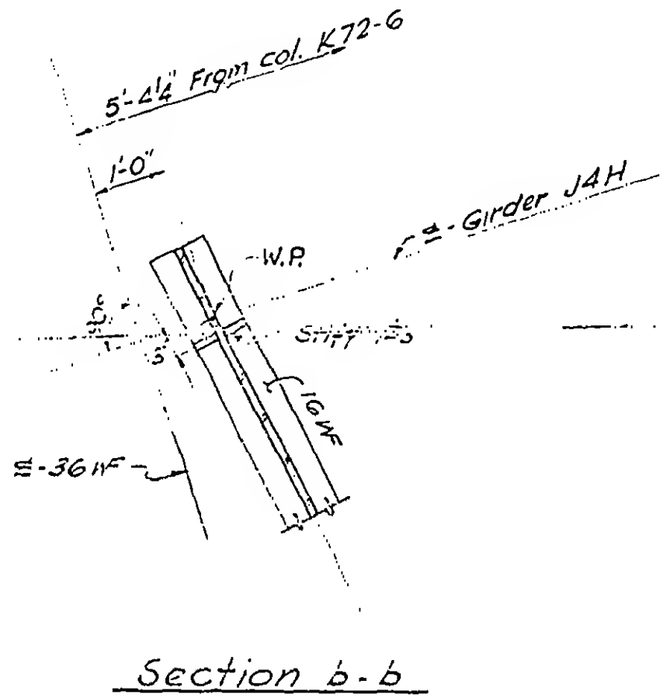
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PROJECT THE WORLD TRADE CENTER | TITLE TEMPORARY STRUCTURE | DATE 10-15-68

REVISIONS



Section a-a



Section b-b

Notes:
1. All Pls to have Fy = 42 KSI Except as noted
2. All welds to be E 7CX-X

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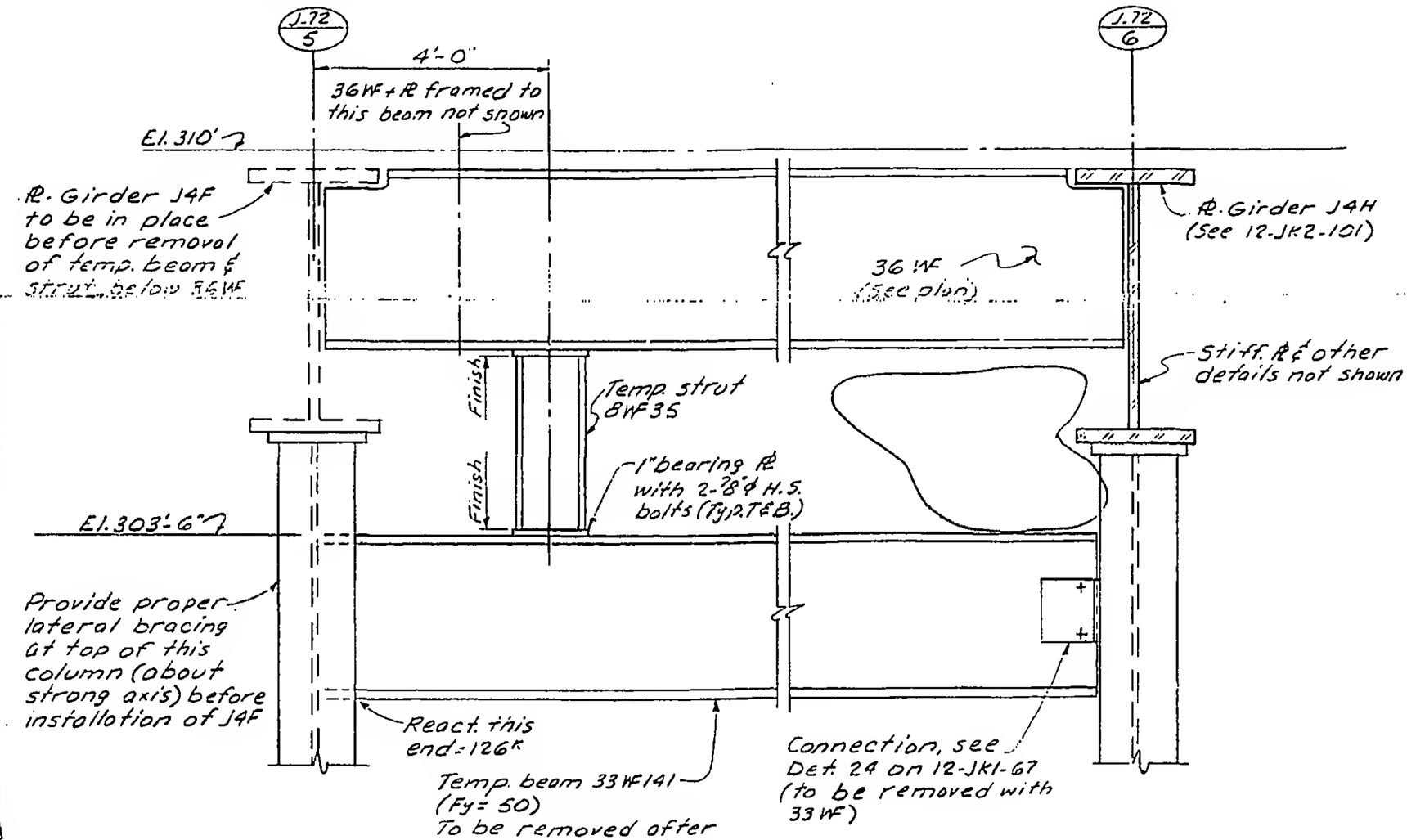
12-JK2-159

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PROJECT: THE WORLD TRADE CENTER | TITLE: TEMPORARY STRUCTURE | DATE: 11-11-68

REVISIONS

12-3-68



LESLIE E. ROBERTSON — PROFESSIONAL ENGINEER — No. 34360 — UNIVERSITY OF THE STATE OF NEW YORK

Notes:

1. All bolts to be A-325 friction type.
2. Temp. beam shown is designed for load from El. 310 only. Floor at El. 332 should not be built until 36WF is properly connected to R-Girder J4F.

DESIGNED

DRAWN

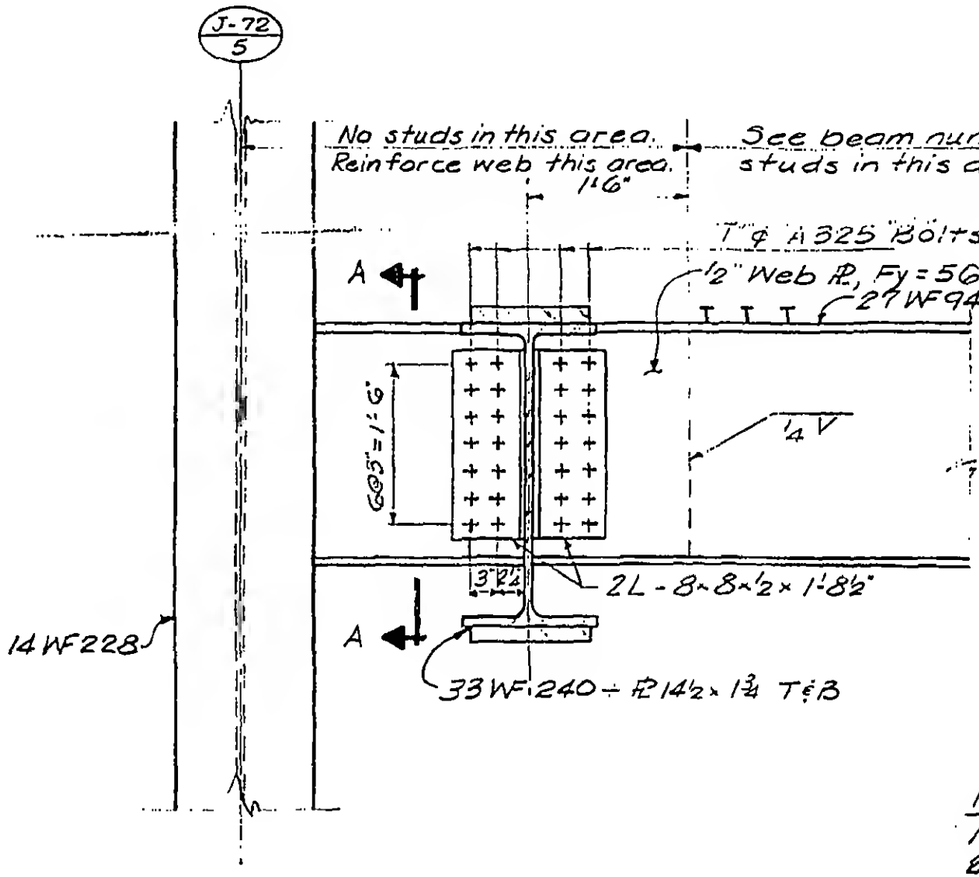
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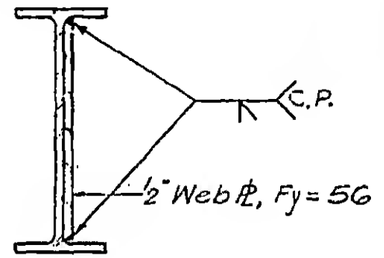
12-JK2-159A

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PROJECT THE WORLD TRADE CENTER | TITLE GIRDER DETAIL | DATE 11-5-68

REVISIONS





SECTION A-A

NOTES:
1) All welds are E70XX.
2) All bolts are A325 High Strength (friction type).



DESIGNED

DRAWN

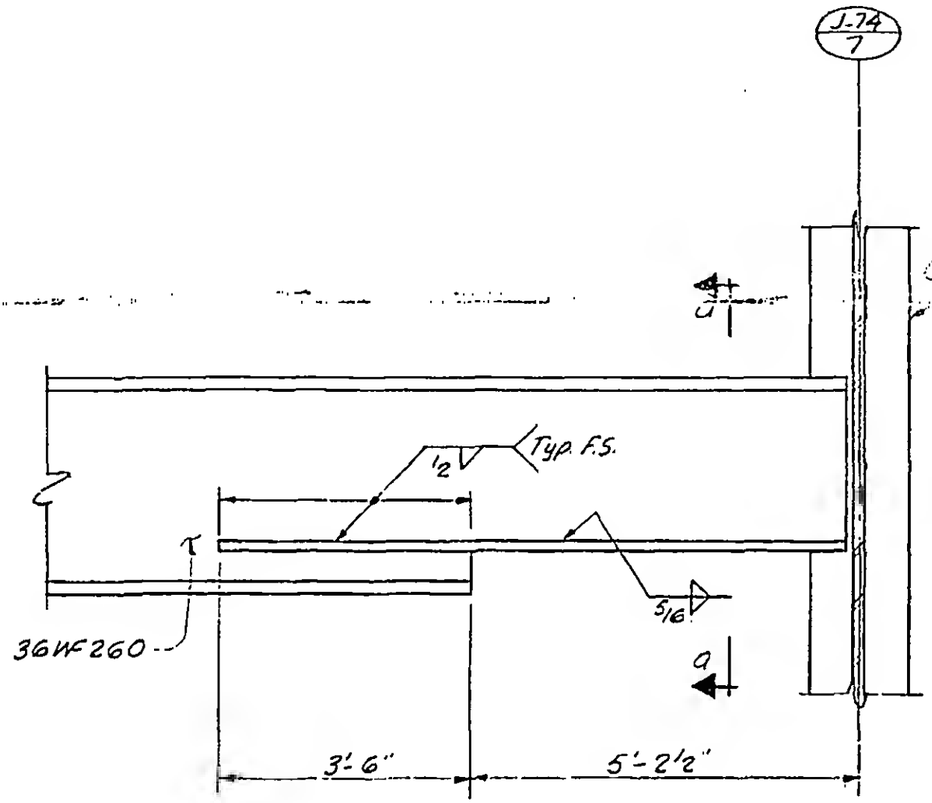
REVIEWED

12-JK2-160

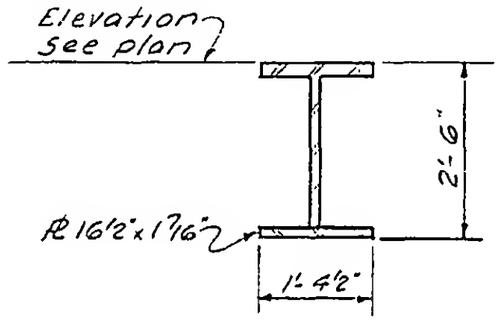
SKILLING, HELLE, CHRISTIANSEN, ROBERTSON Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE BEAM DETAIL | DATE 12-3-68

REVISIONS



ELEVATION



Section a-a

LICENSED PROFESSIONAL ENGINEER
LESLIE E. ROBERTSON
No. 34360
UNIVERSITY OF THE STATE OF NEW YORK

DESIGNED

DRAWN

REVIEWED

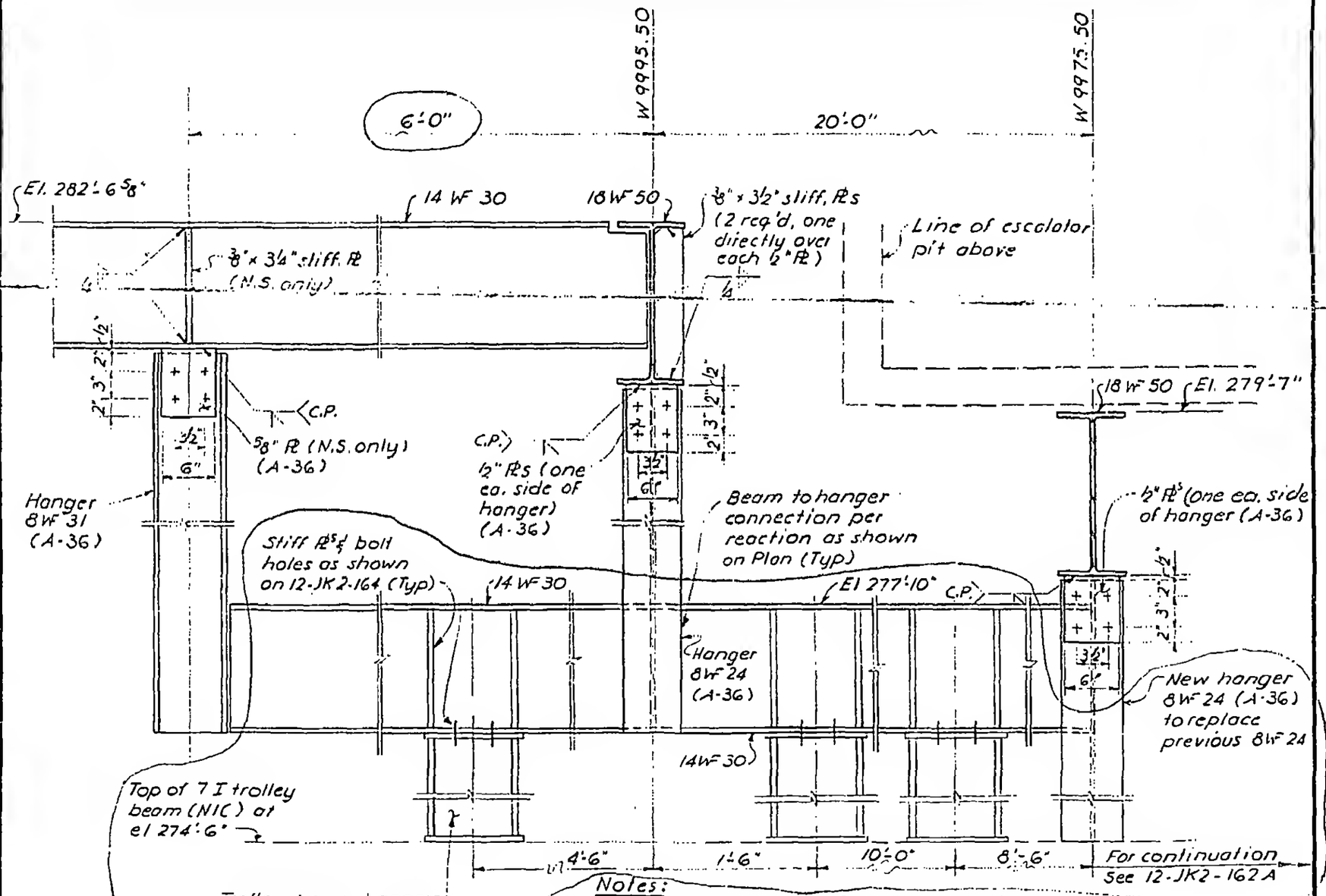
12-JK2-161

SKILLING, HELLE, CHRISTIANSEN, ROBERTSON — Structural & Civil Engineers

PROJECT: THE WORLD TRADE CENTER | TITLE: BEAM DETAILS | DATE: 11-27-68

REVISIONS

6-19-69



Notes:

1. All bolts to be 3/4" ϕ H.S. friction type.
2. All welds to be E70XX,
3. See 12-JK2-164 for typical detail of supports for future trolley beams.
4. Allow 1/8" erection clearance between ℄ hangers. Provide shims if necessary to insure surface contact for friction type H.S. bolts.

12-JK2-162

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DESIGNED

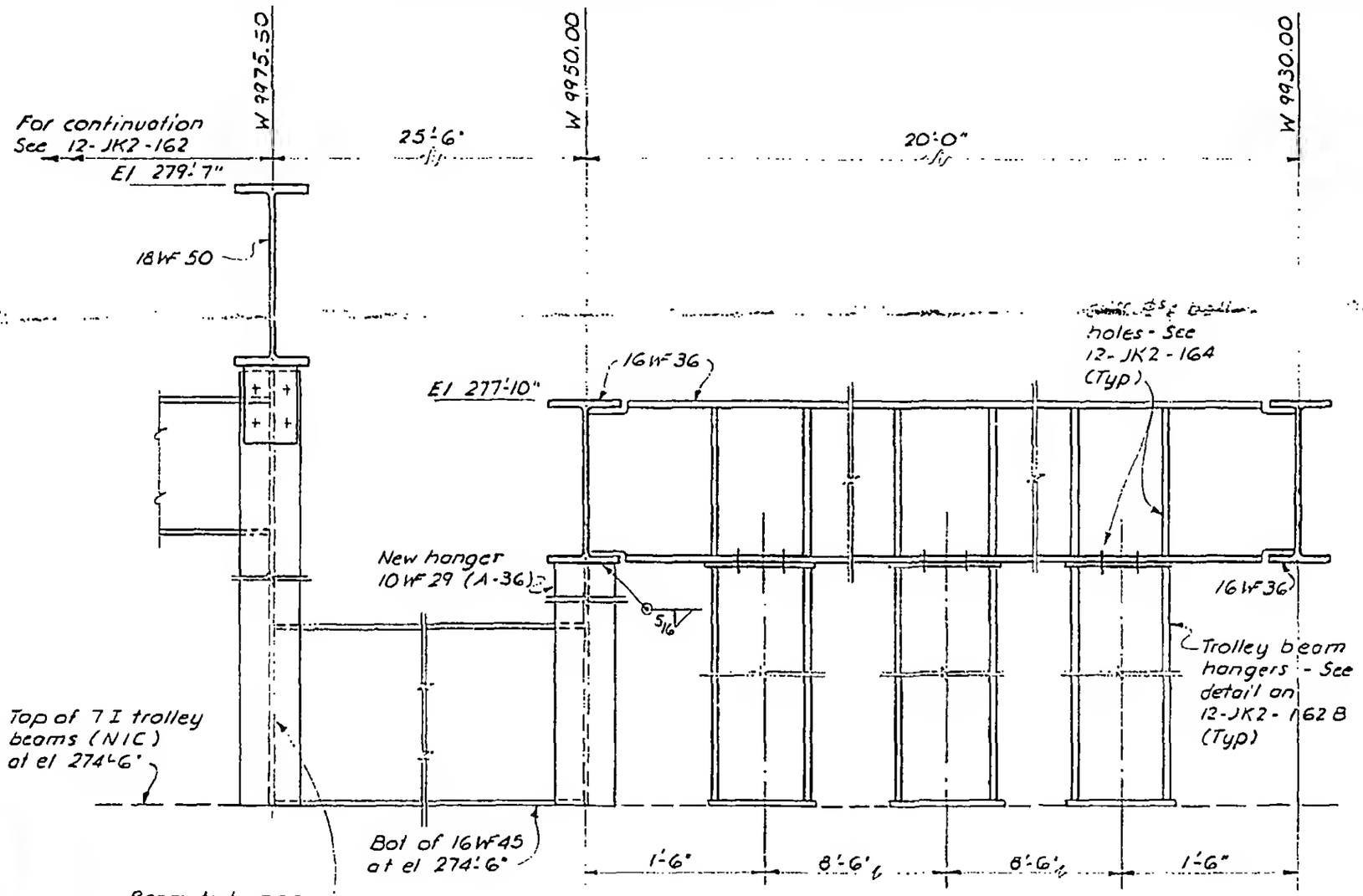
DRAWN: F. Smith

REVIEWED: E.L.

SKILLING, HELLE, CHRISTIANSEN, ROBERTSON — Structural & Civil Engineers

PROJECT: THE WORLD TRADE CENTER | TITLE: BEAM DETAILS | DATE: 6-19-69

REVISIONS



See Notes on 12-JK2-162

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DESIGNED

DRAWN: F. Smith

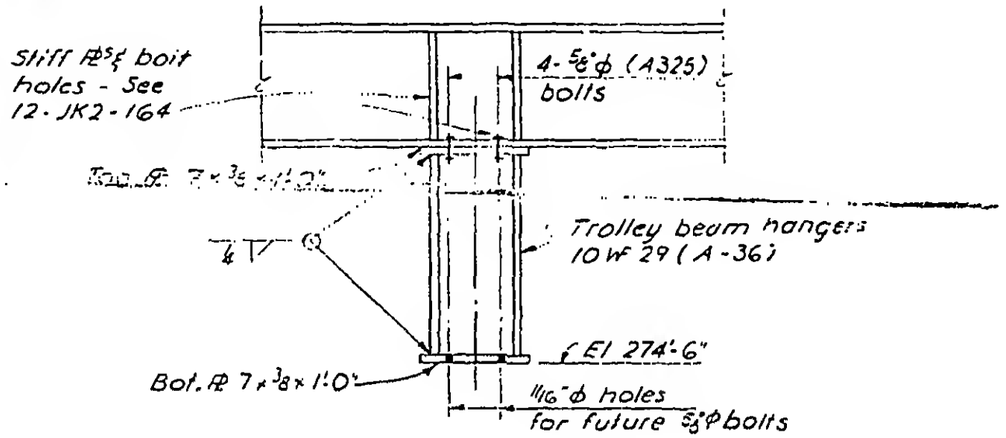
REVIEWED: E.L.

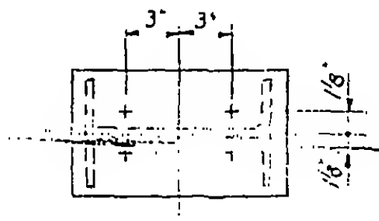
12-JK2-162A

SKILLING, HELLE, CHRISTIANSEN, ROBERTSON — Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE TROLLEY BEAM HANGER DETAILS | DATE 6-19-69

REVISIONS





Plan of Bot. Plate

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No. 34360
UNIVERSITY OF THE STATE OF NEW YORK

DRAWN
F. Smith
REVIEWED
E.L.

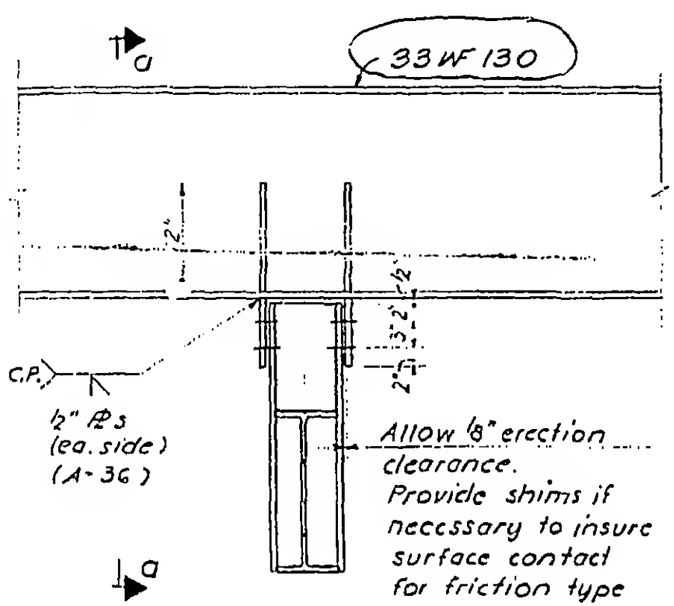
12-JK2-162B

SKILLING, HELLE, CHRISTIANSEN, ROBERTSON — Structural & Civil Engineers

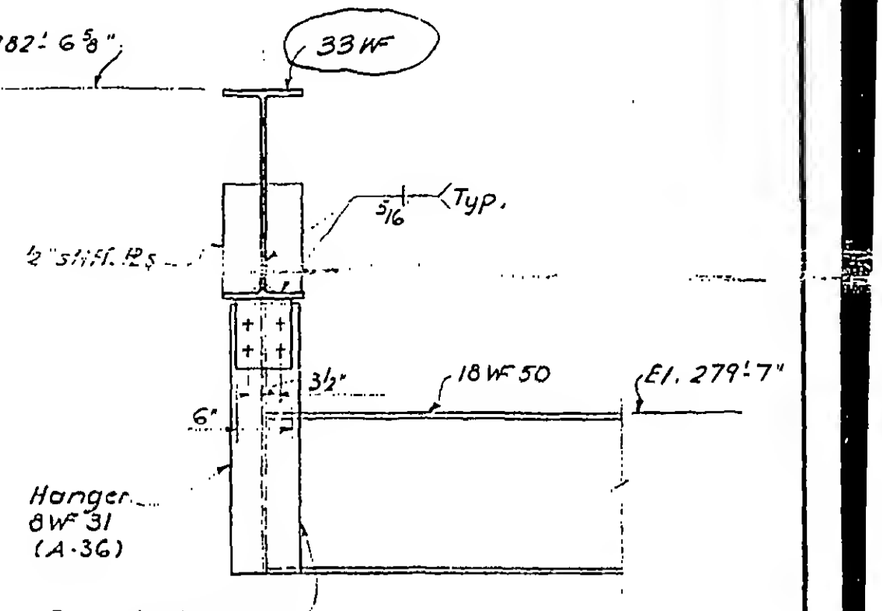
PROJECT: THE WORLD TRADE CENTER | TITLE: BEAM DETAILS | DATE: 11-27-68

REVISIONS

1-20-69



ELEVATION



Section a-a

Notes:

1. All bolts to be 3/4" ϕ H.S. friction type.
2. All welds to be E 70xx.

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DESIGNED

DRAWN S.C.

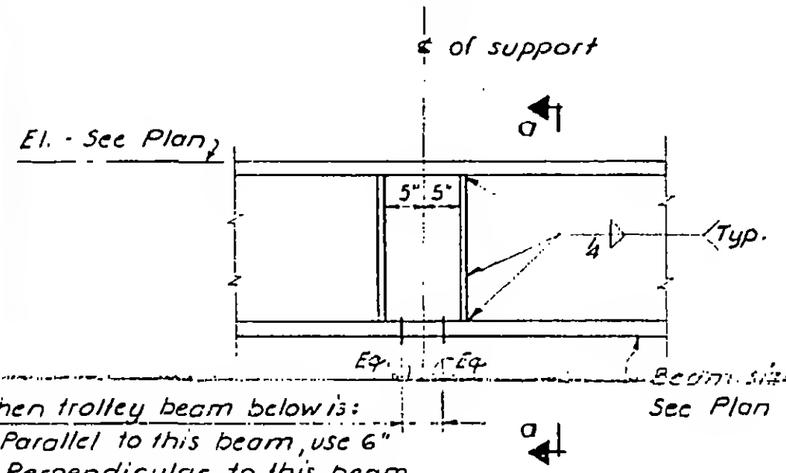
REVIEWED E.L.

12-JK2-163

SKILLING, HELLE, CHRISTIANSEN, ROBERTSON Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE BEAM DETAILS | DATE 11-27-68

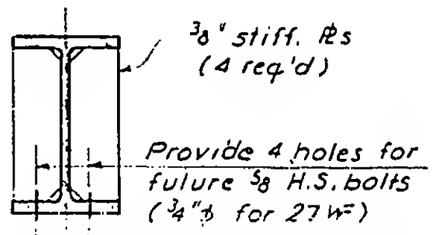
REVISIONS



When trolley beam below is:
1. Parallel to this beam, use 6"
2. Perpendicular to this beam use g-value of beam below.

Elevation

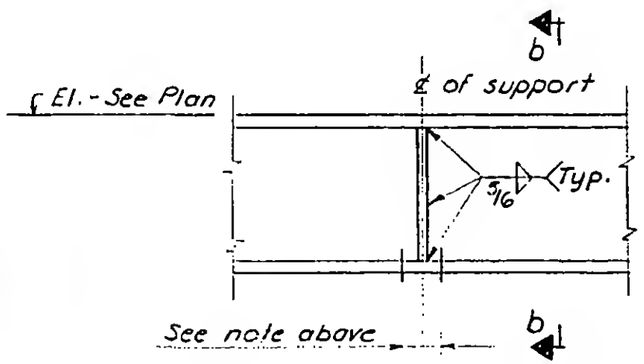
(Where other beam frome into this one, see detail below.)



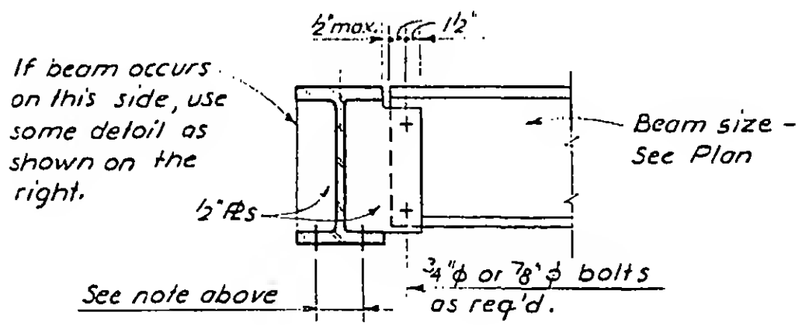
When trolley beam below is:
1. Parallel to this beam, use g-value of beam below.
2. Perpendicular to this beam, use g-value of this beam.

Section a-a

TYPICAL DETAIL OF SUPPORT FOR FUTURE TROLLEY BEAMS



Elevation



Section b-b

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UNIVERSITY OF THE STATE OF NEW YORK

DESIGNED

DRAWN

REVIEWED

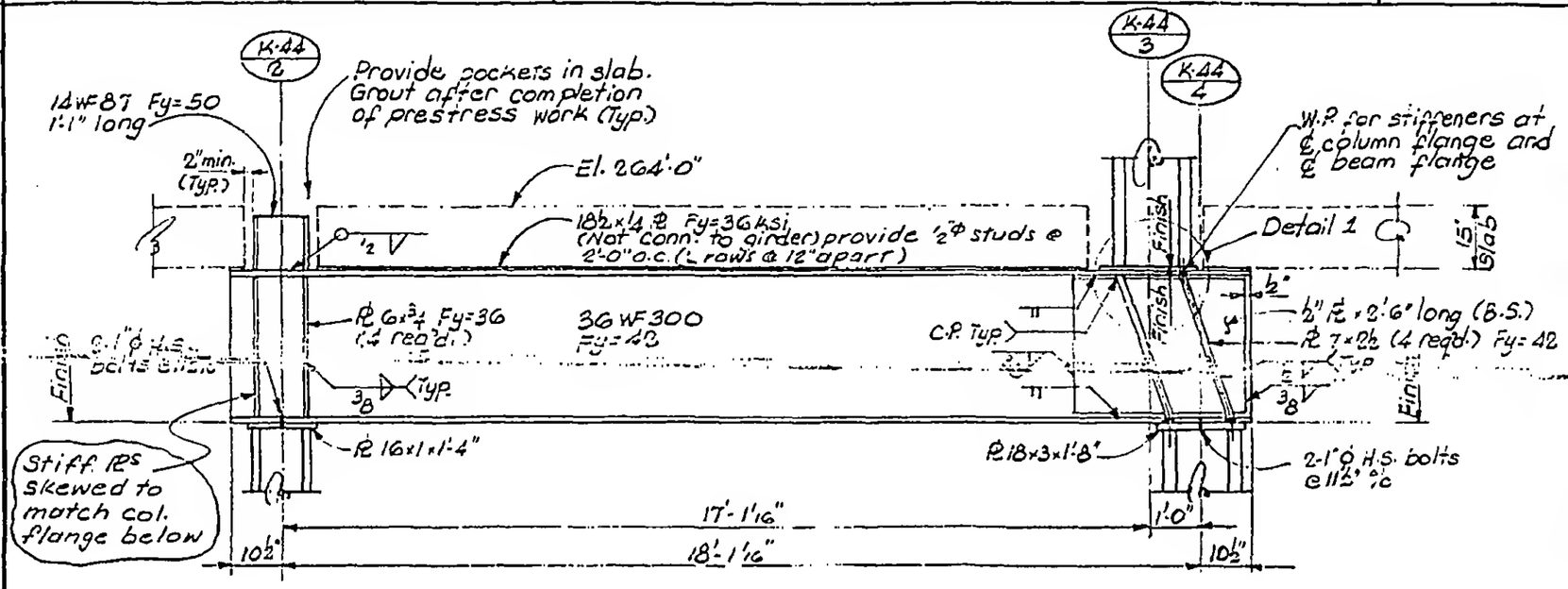
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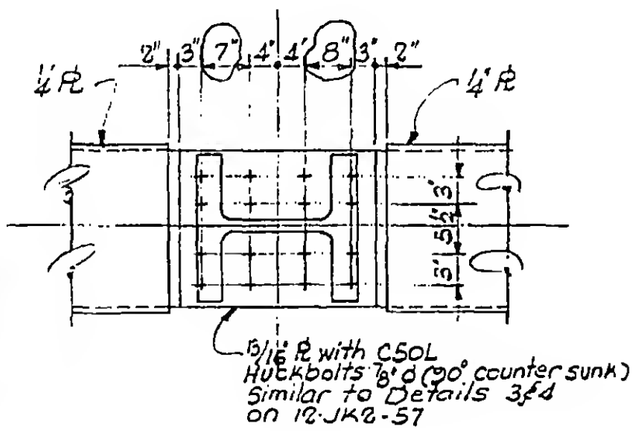
SKILLING, HELLE, CHRISTIANSEN, ROBERTSON — Structural & Civil Engineers

PROJECT: THE WORLD TRADE CENTER | TITLE: DETAIL OF PLATE GIRDER | DATE: 12-17-68

REVISIONS

2-19-69





Detail 1

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DRAWN S.C.

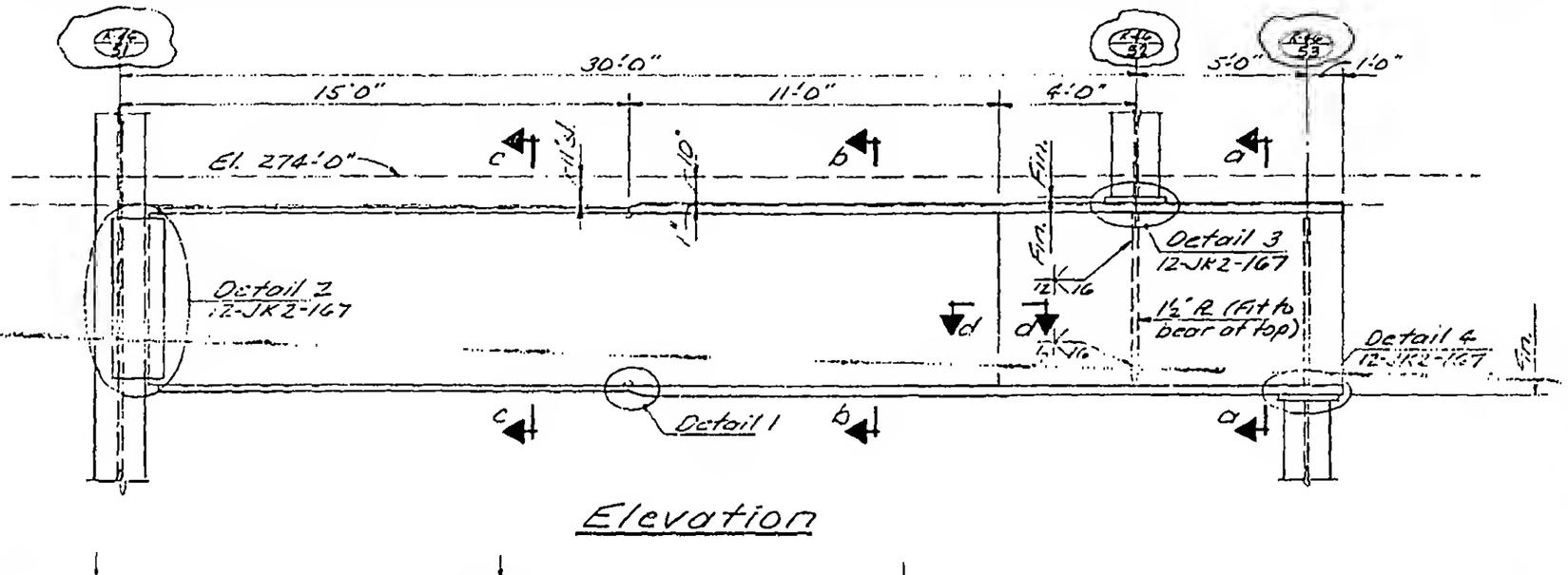
REVIEWED E.L.

12-JK2-165

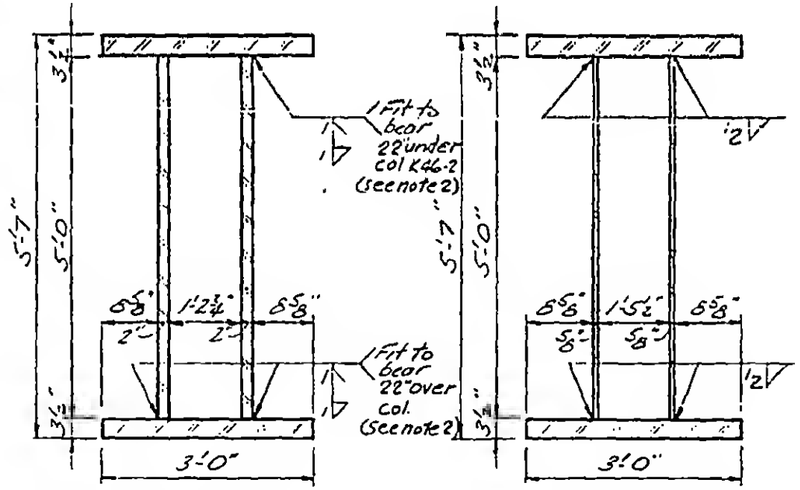
SKILLING, HELLE, CHRISTIANSEN, ROBERTSON — Structural & Civil Engineers

PROJECT: THE WORLD TRADE CENTER | TITLE: DETAIL OF PLATE GIRDER | DATE: 12-17-68

REVISIONS
1-8-69
4-30-69

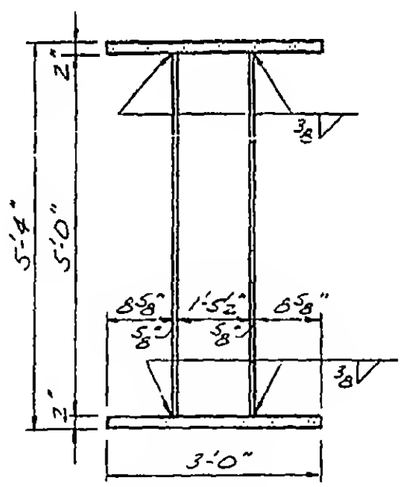


Elevation

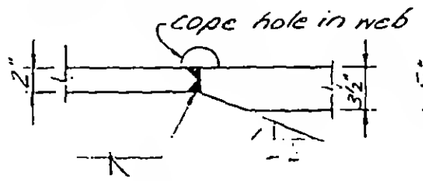


Section a-a

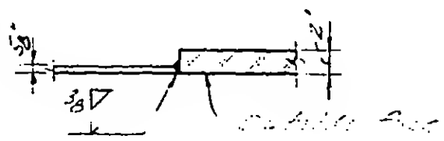
Section b-b



Section c-c



Detail 1



Section d-d

Note:
1. All material to be Fy42.
2. At contractor's option to use complete penetration weld 22" at column.

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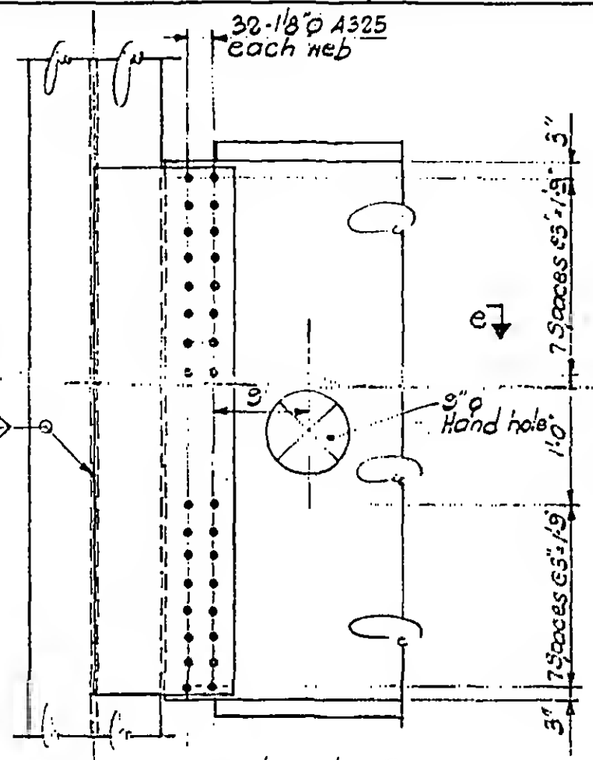
DESIGNED
DRAWN A.F.
REVIEWED

12-JKZ-166

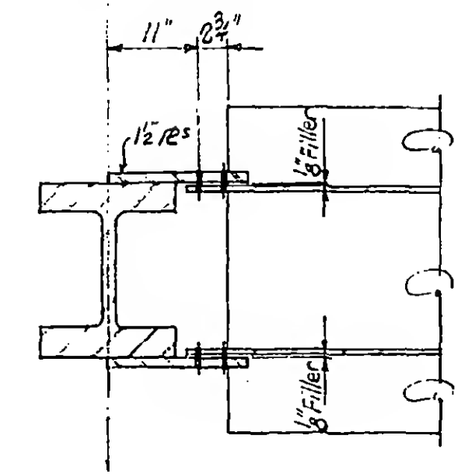
SKILLING, HELLE, CHRISTIANSEN, ROBERTSON — Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE DETAIL OF PLATE GIRDER | DATE 12-17-68

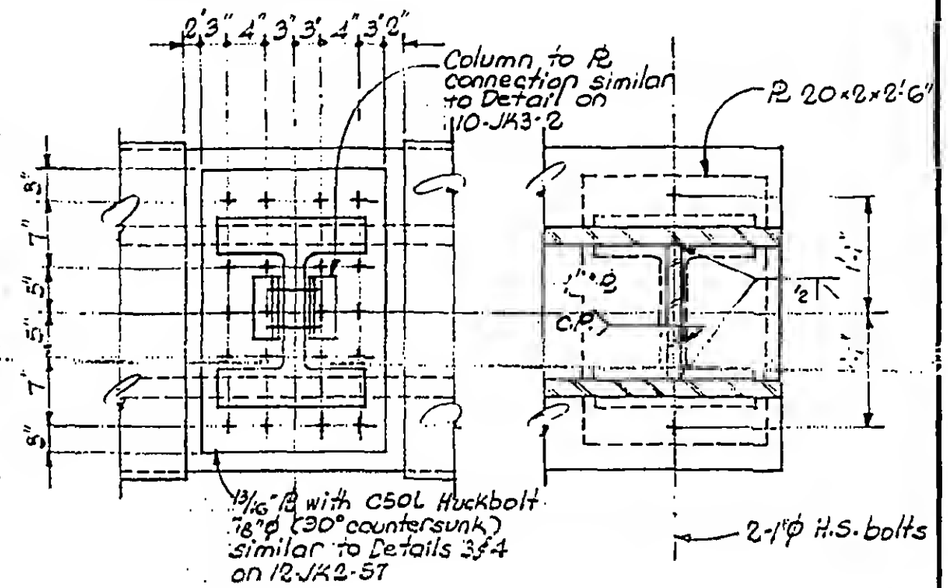
REVISIONS



Detail 2



Section e-e



Detail 3 Detail 4

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DRAWN

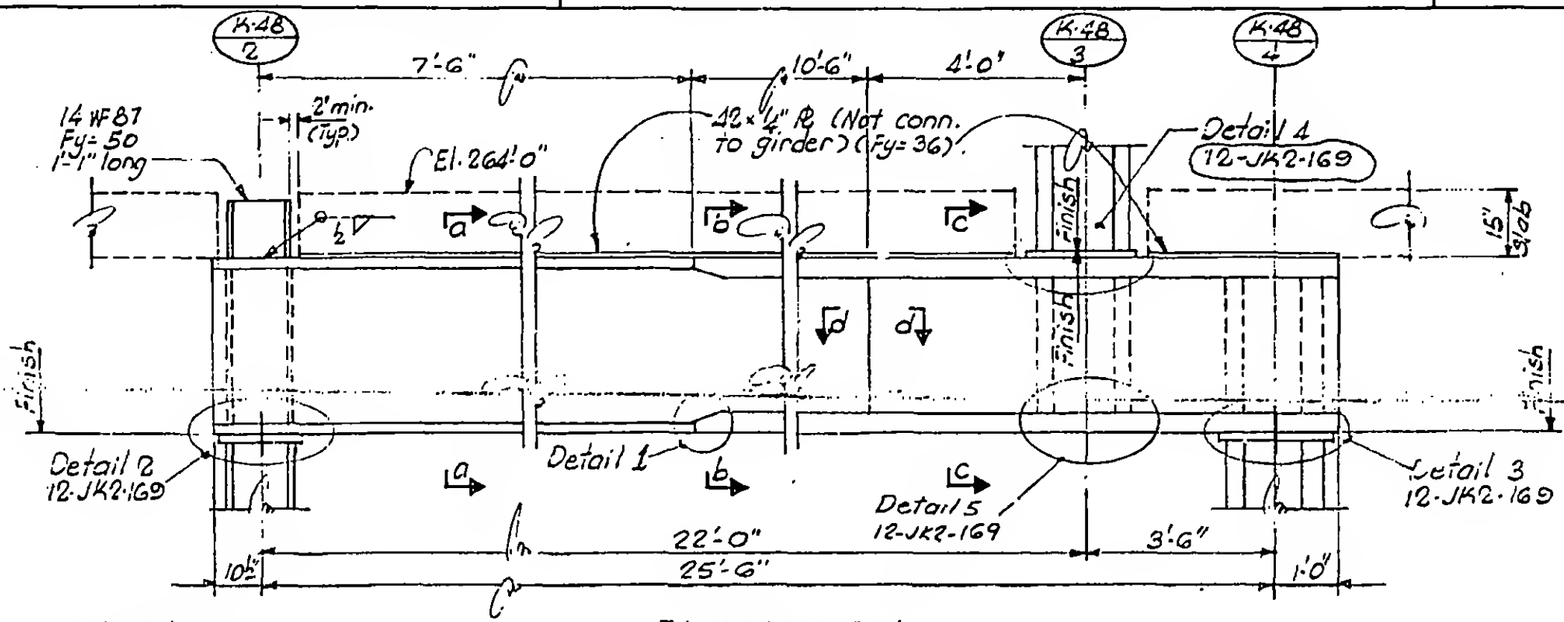
REVIEWED

12-JK2-167

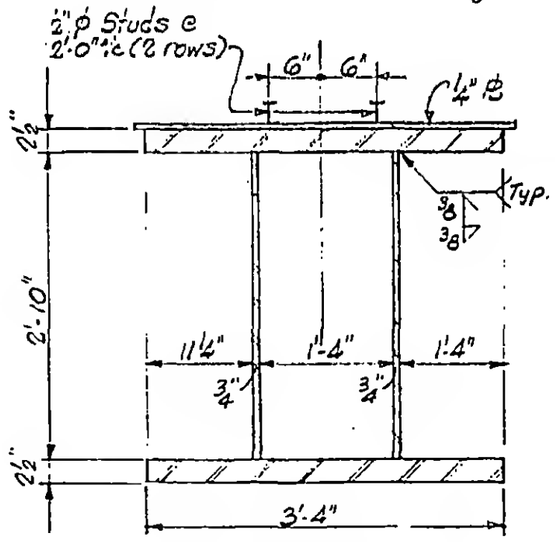
SKILLING, HELLE, CHRISTIANSEN, ROBERTSON — Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE DETAIL OF PLATE GIRDER | DATE 12-17-68

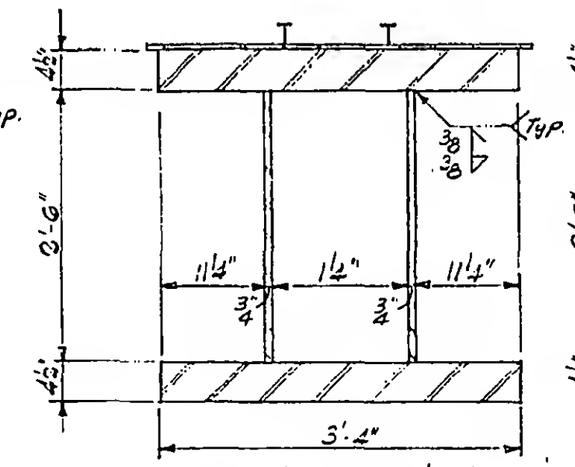
REVISIONS
2-19-69



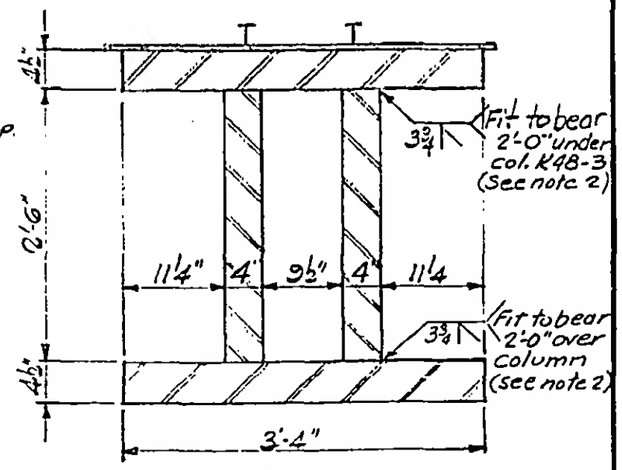
ELEVATION



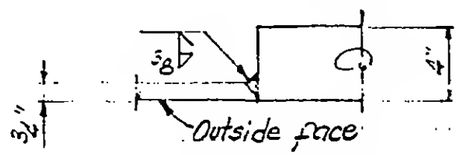
Section a-a



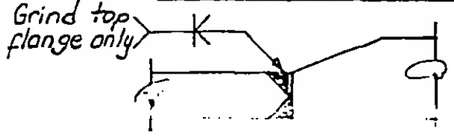
Section b-b



Section c-c



Section d-d



Detail 1

NOTE:
1. All material to be Fy=42 unless noted.
2. At contractor's option to use complete penetration weld 2'-0" at column

12-JK2-168

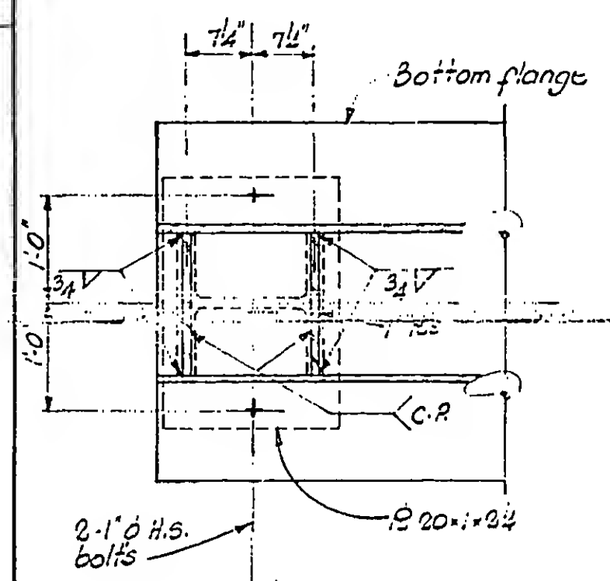
DESIGNED
DRAWN S.C.
REVIEWED E.L.

SKILLING, HELLE, CHR'STIANSEN, ROBERTSON — Structural & Civil Engineers

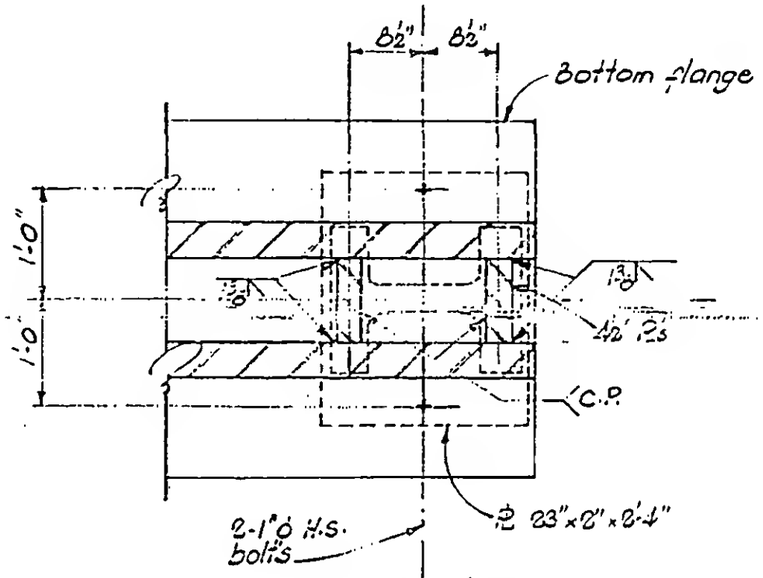
PROJECT THE WORLD TRADE CENTER | TITLE DETAIL OF PLATE GIRDER | DATE 12-17-68

REVISIONS

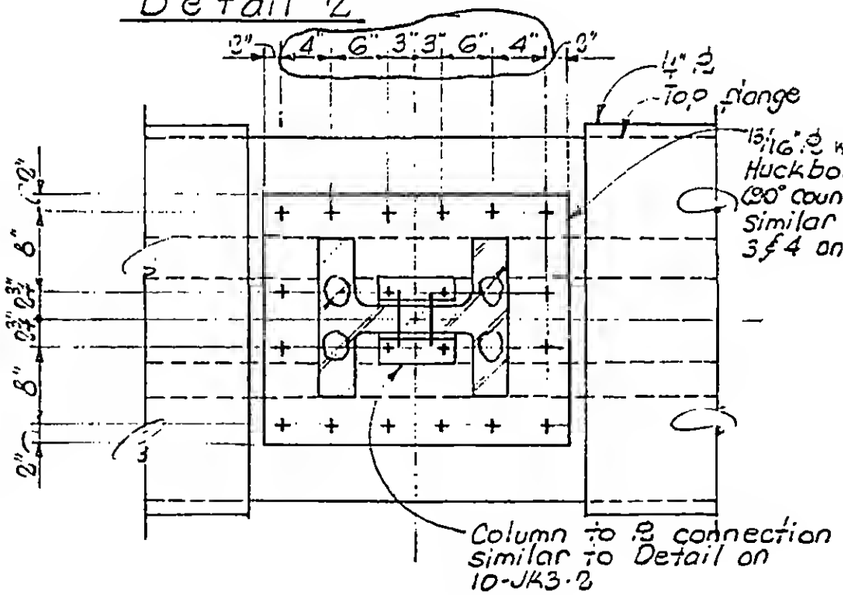
2-19-69



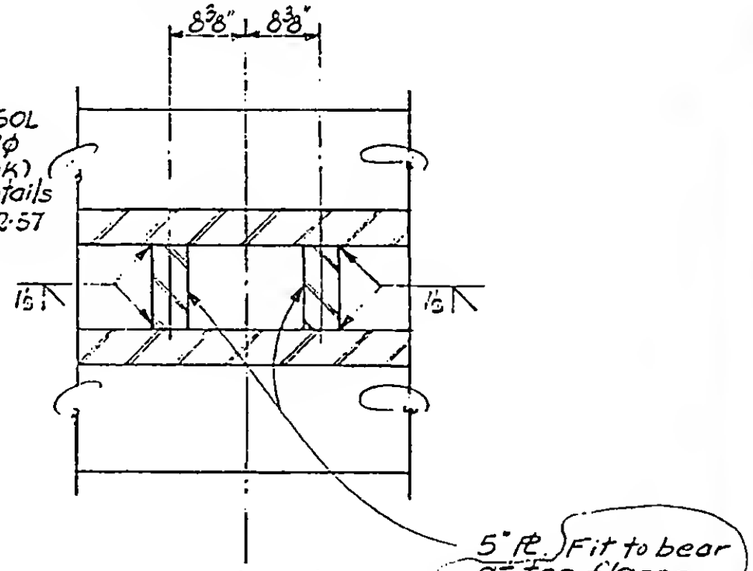
Detail 2



Detail 3



Detail 4



Detail 5

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LESLIE E. ROBERTSON
No. 34360
UNIVERSITY OF THE STATE OF NEW YORK

DESIGNED

DRAWN
S.C.

REVIEWED
E.L.

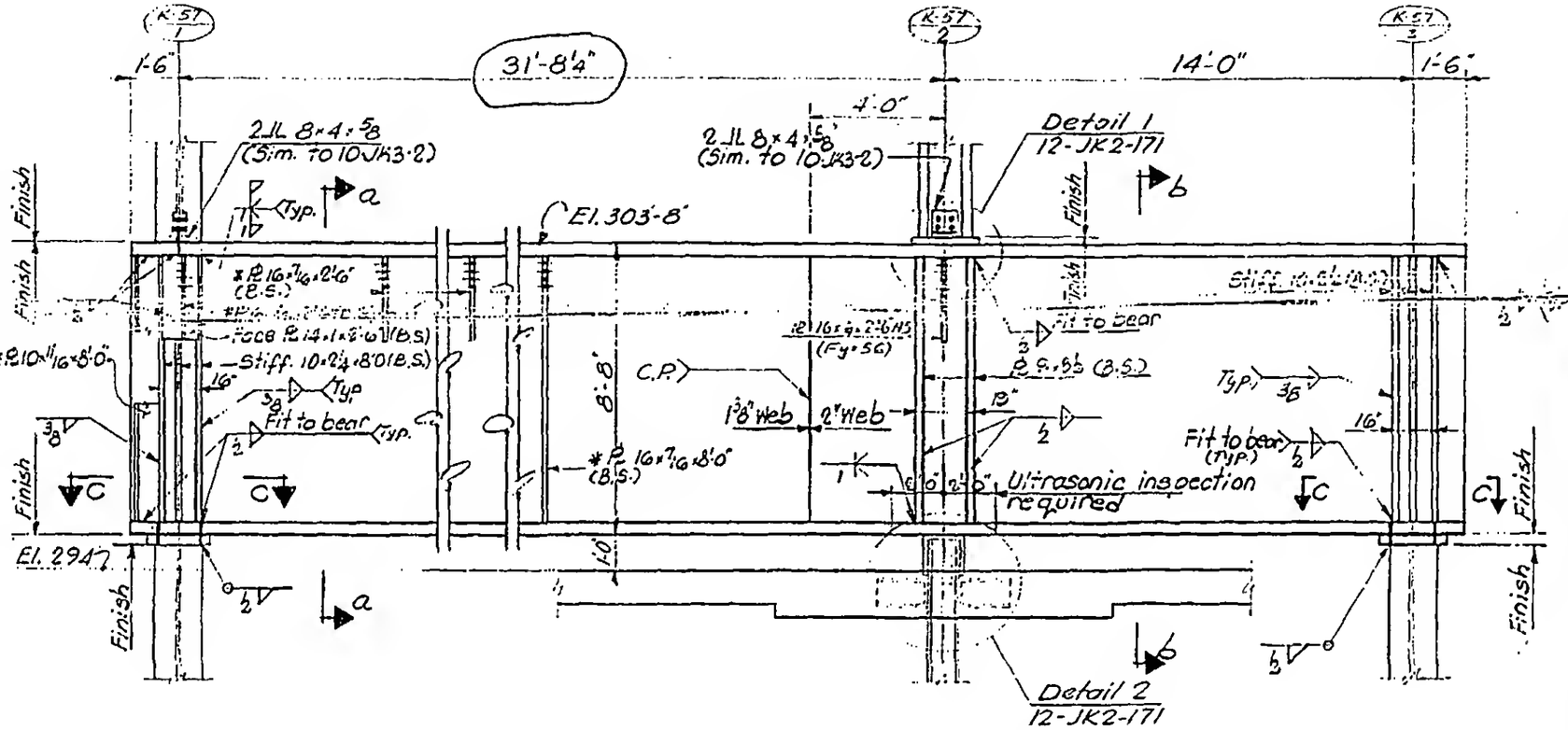
12-JK2-169

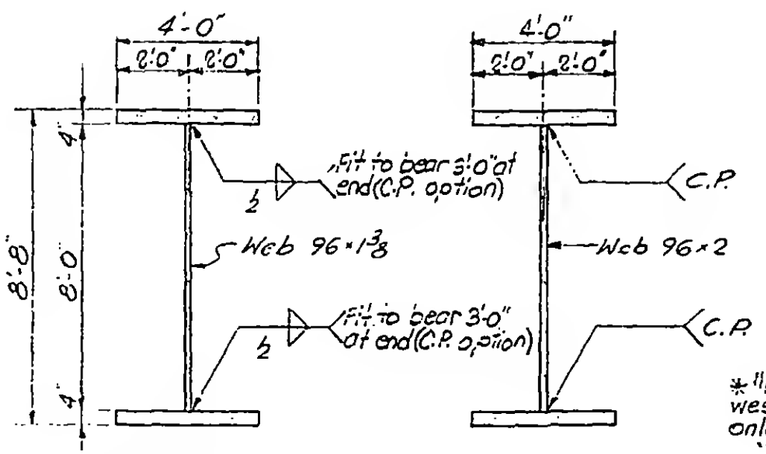
SKILLING, HELLE, CHRISTIANSEN, ROBERTSON — Structural & Civil Engineers

PROJECT: THE WORLD TRADE CENTER | TITLE: DETAILS OF PLATE GIRDER | DATE: 3-21-69

REVISIONS

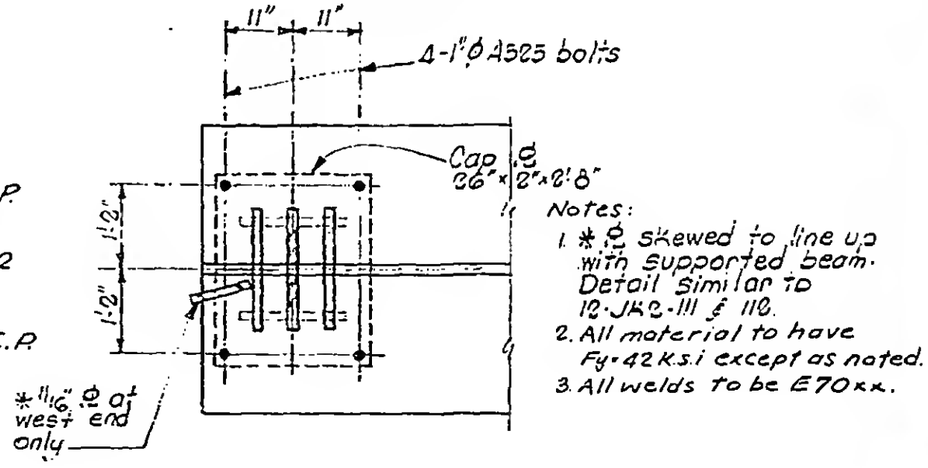
5-29-69





Section a-a

Section b-b



Section c-c

Notes:
1. * ϕ skewed to line up with supported beam. Detail similar to 12-JK2-111 & 118.
2. All material to have Fy = 42 K.S.I except as noted.
3. All welds to be E70xx.

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DESIGNED

DRAWN J. Gricius

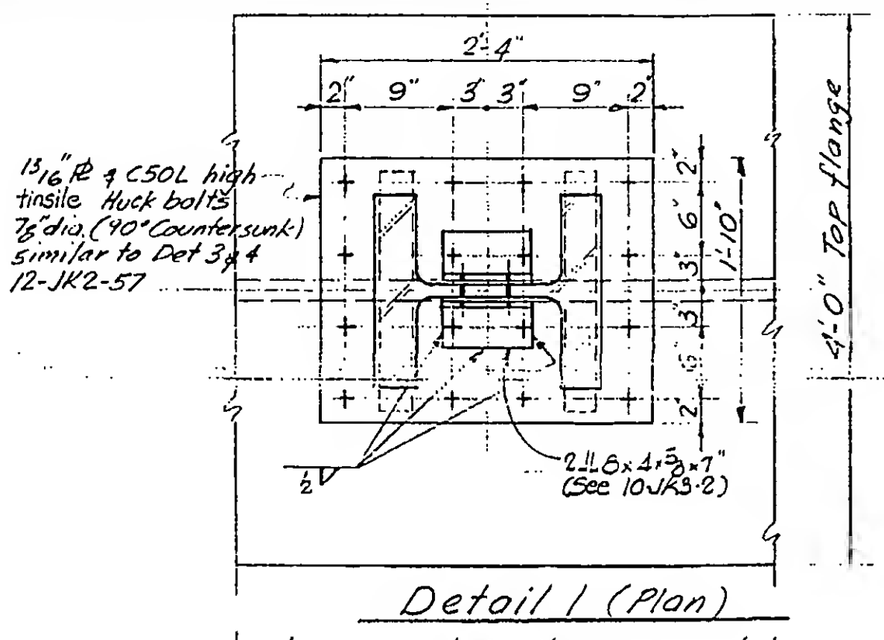
REVIEWED E.L.

12-JK2-170

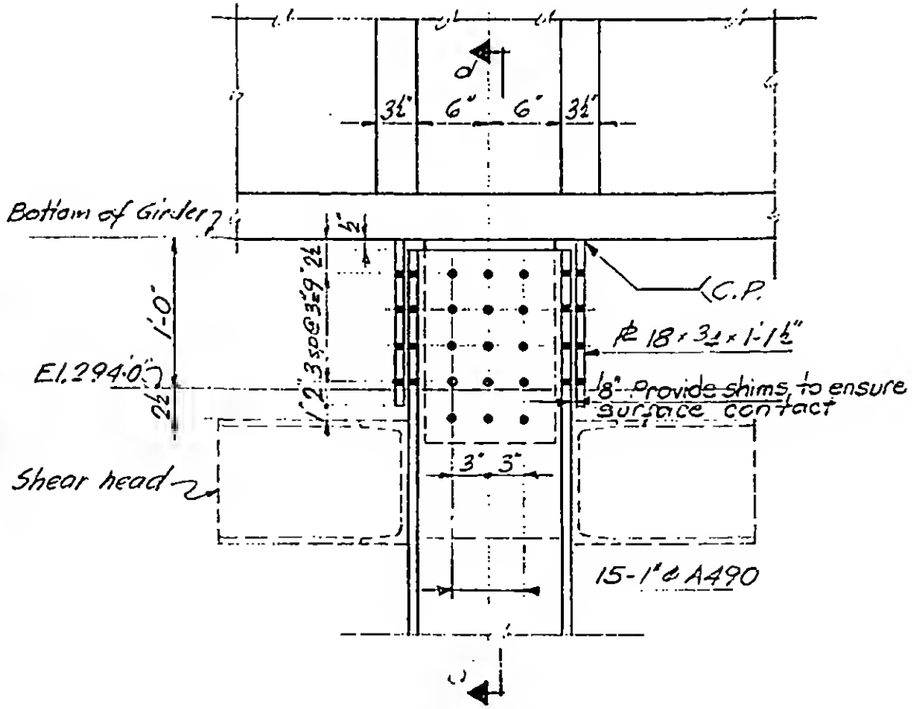
SKILLING, HELLE, CHRISTIANSEN, ROBERTSON — Structural & Civil Engineers

PROJECT: THE WORLD TRADE CENTER | TITLE: DETAILS OF PLATE GIRDER | DATE: 3-21-69

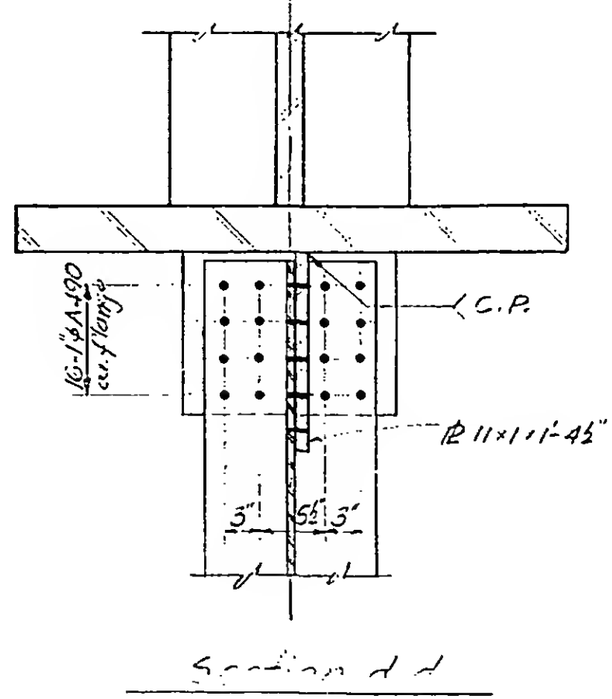
REVISIONS



Detail 1 (Plan)



Detail 2 (Elevation)



Section A-A

LICENSED PROFESSIONAL ENGINEER — LESLIE E. ROBERTSON — No 34360 — UNIVERSITY OF THE STATE OF NEW YORK

DESIGNED: [illegible]
DRAWN: J. Gricius
REVIEWED: E.L.

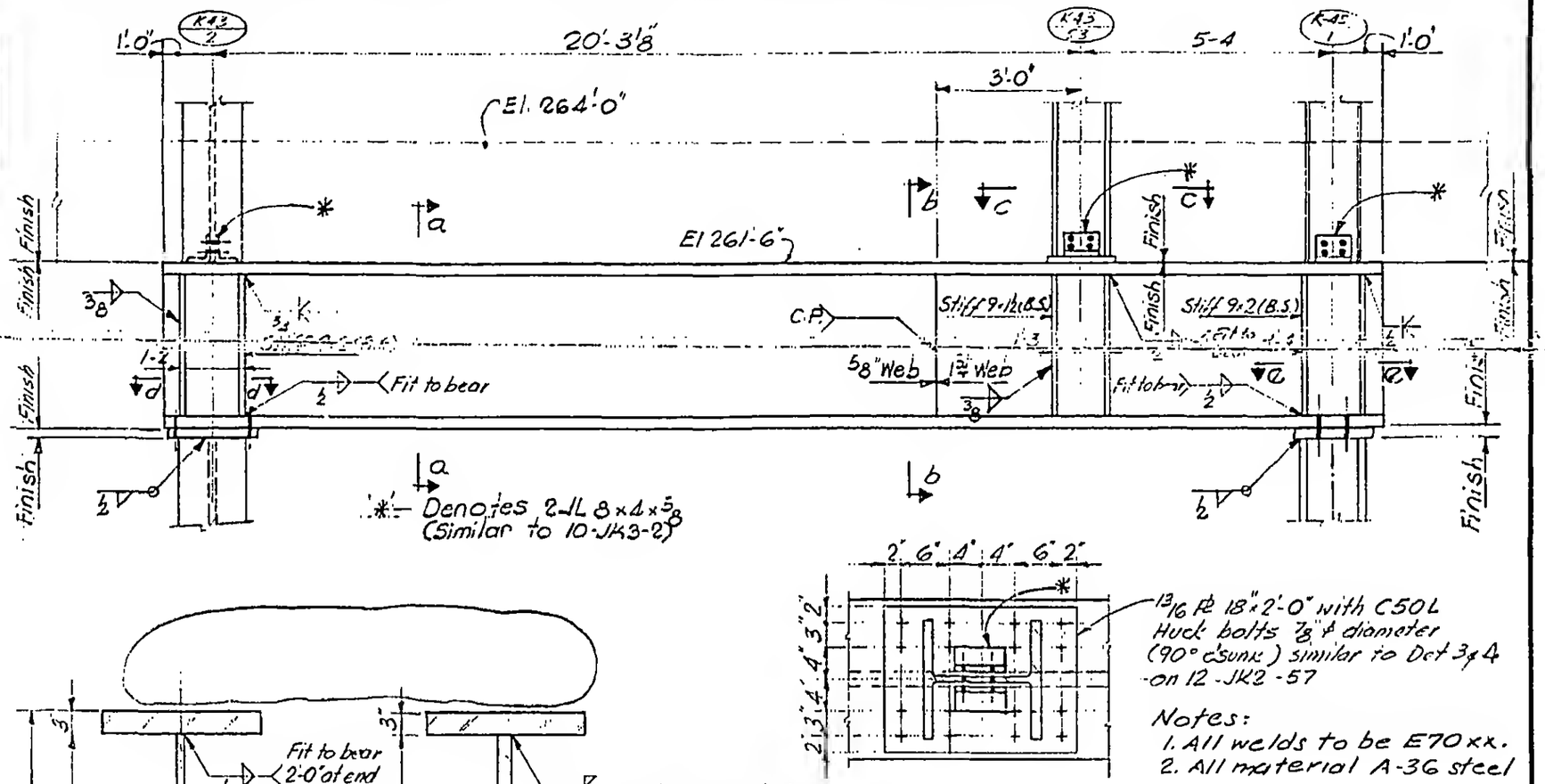
12-JK2-171

SKILLING, HELLE, CHRISTIANSEN, ROBERTSON — Structural & Civil Engineers

PROJECT: THE WORLD TRADE CENTER | TITLE: DETAILS OF PLATE GIRDER | DATE: 3-12-69

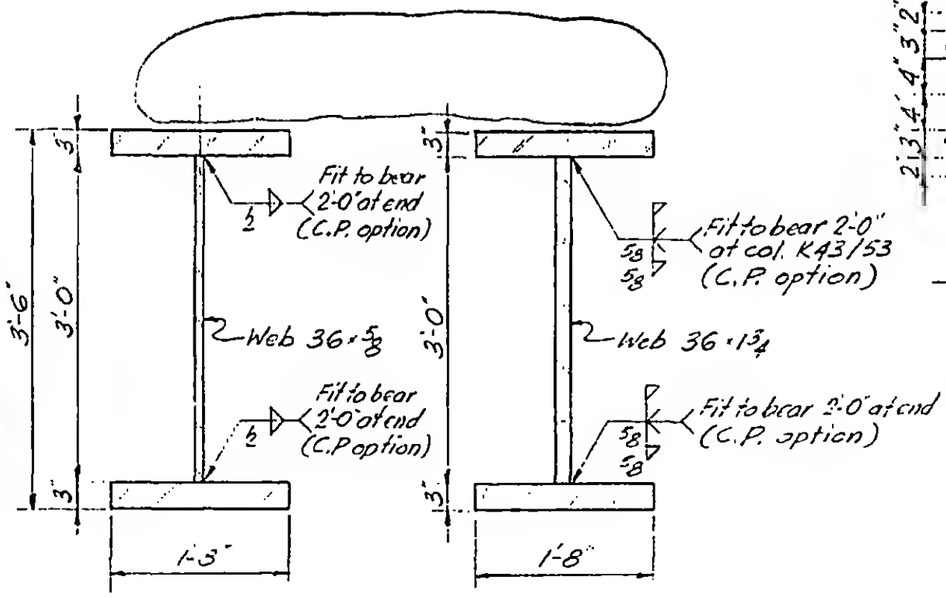
REVISIONS

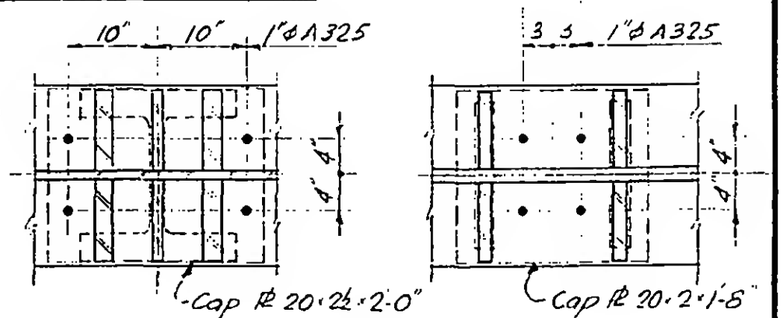
3-21-69



Notes:
1. All welds to be E70xx.
2. All material A-36 steel

Section c-c





Section a-a | Section b-b | Section d-d | Section e-e

12-JK2-172

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DESIGNED: [illegible]

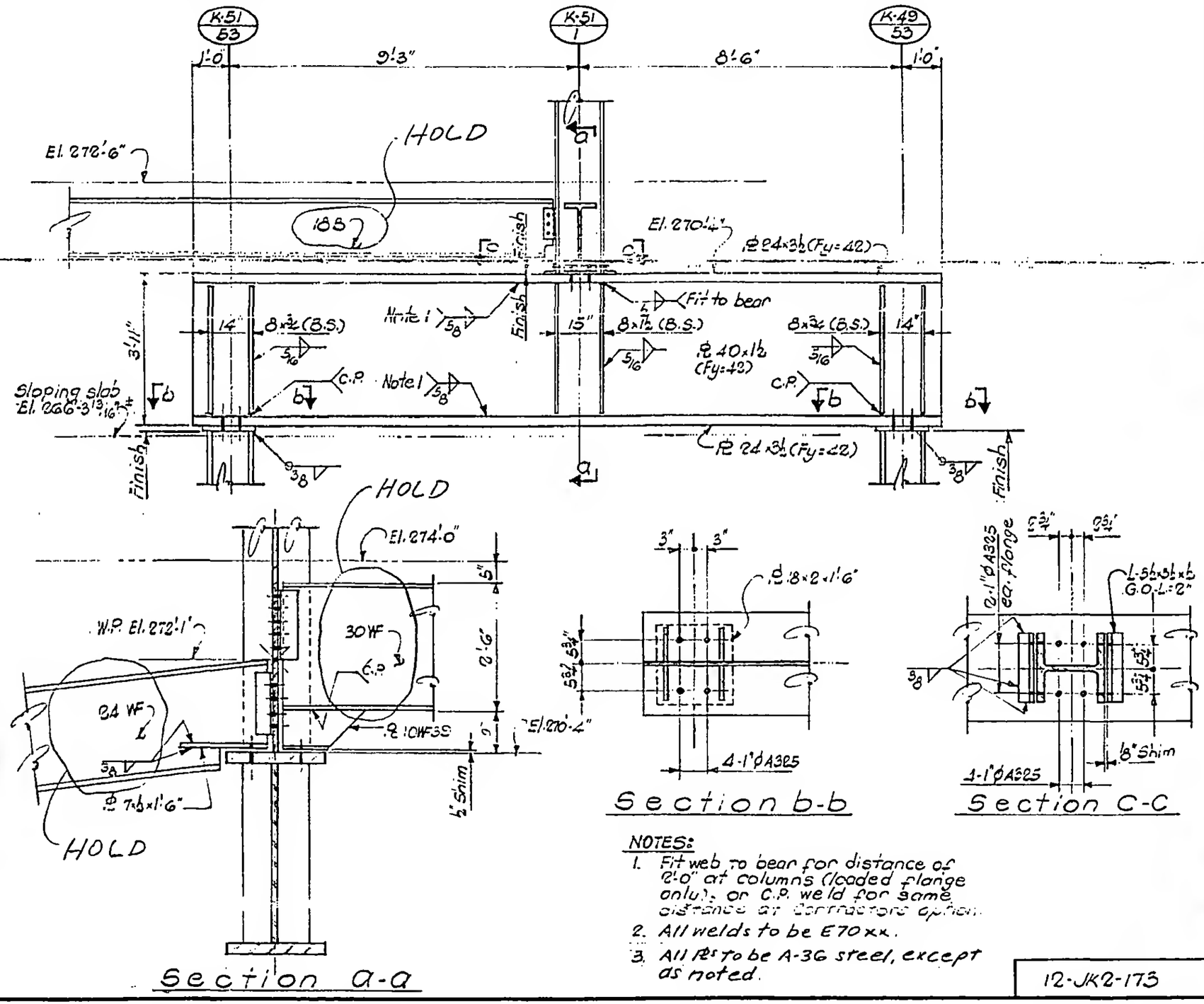
DRAWN: J. Gricius

REVIEWED: E.L.

SKILLING, HELLE, CHRISTIANSEN, ROBERTSON — Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE DETAIL OF PLATE GIRDER | DATE 3-12-69

REVISIONS



Section a-a

Section b-b

Section C-C

NOTES:

1. Fit web to bear for distance of 2'-0" at columns (loaded flange only), or C.P. weld for same distance at contractors option.
2. All welds to be E70xx.
3. All PL's to be A-36 steel, except as noted.

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DESIGNED J. Huffnagle.

DRAWN S.T.M.

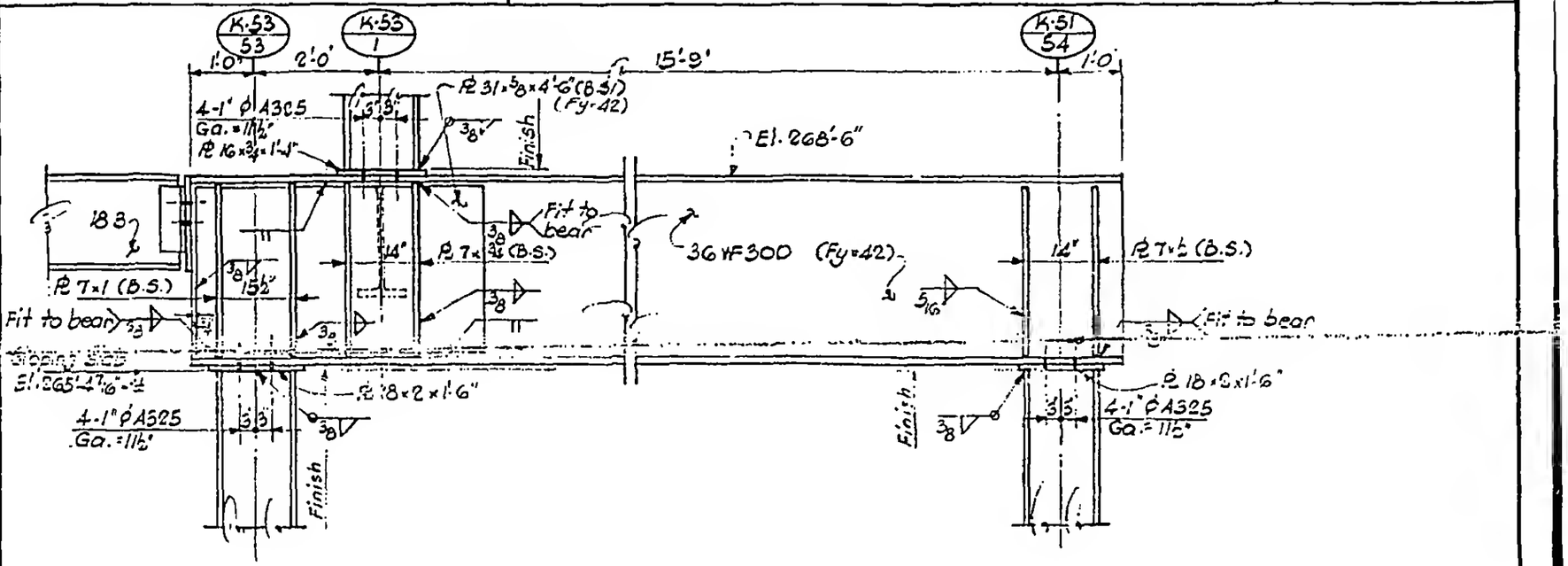
REVIEWED E.L.

12-JK2-173

SKILLING, HELLE, CHRISTIANSEN, ROBERTSON — Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE DETAIL OF PLATE GIRDER | DATE 3-12-69

REVISIONS



Notes:
1. All welds to be E70xx.
2. All PLs to be A-36 steel except as noted.

LICENSED PROFESSIONAL ENGINEER — LESLIE E. ROBERTSON — NEW YORK

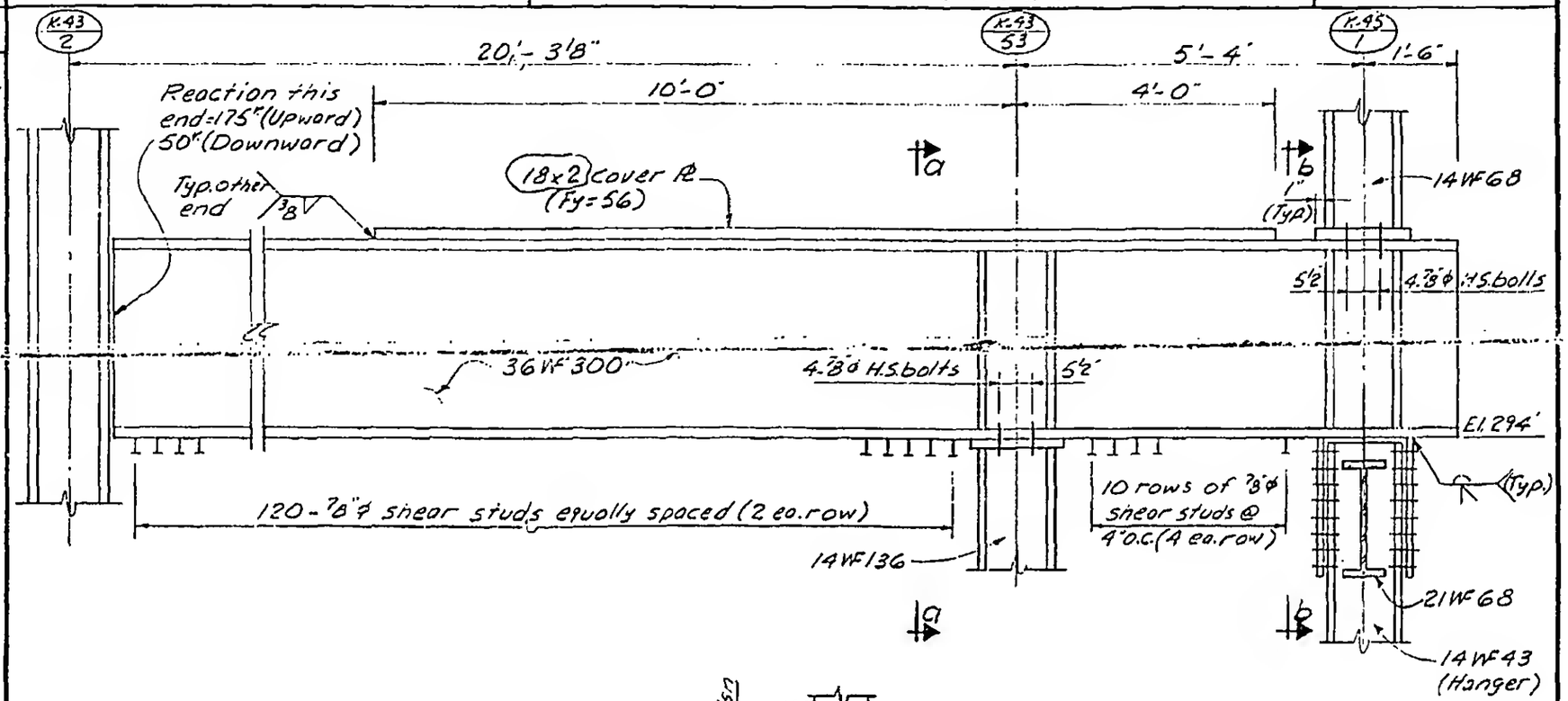
DESIGNED
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DRAWN
S.T.M.
REVIEWED
E.L.

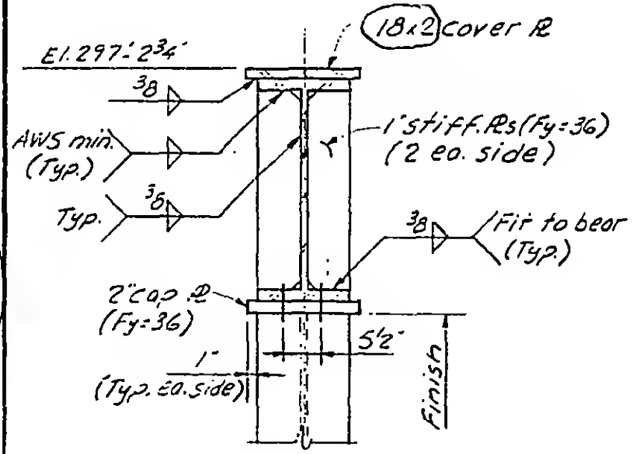
12-JK2-174

SKILLING, HELLE, CHRISTIANSEN, ROBERTSON — Structural & Civil Engineers

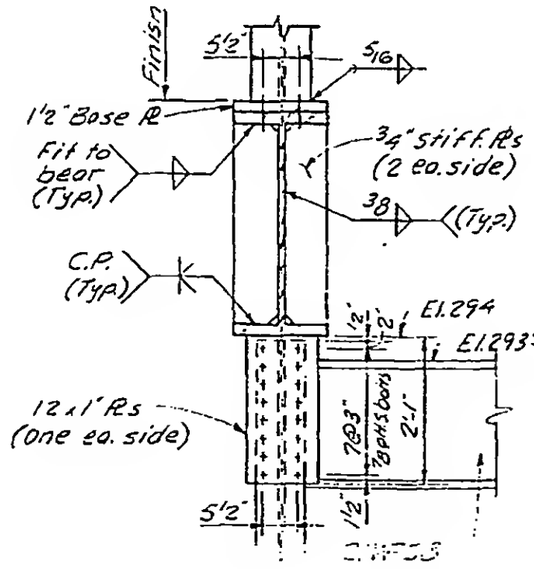
PROJECT: THE WORLD TRADE CENTER | TITLE: DETAIL OF PLATE GIRDER | DATE: 3-21-69

REVISIONS
4-18-69





Section a-a



Section b-b

Notes:
1. All welds to be E70xx.
2. All bolts to be A-325 friction type H.S. bolts.
3. Column cap PL detail similar to detail 104(10-JK2-7)

12-JK2-175

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DRAWN
A.L. FRANQUI

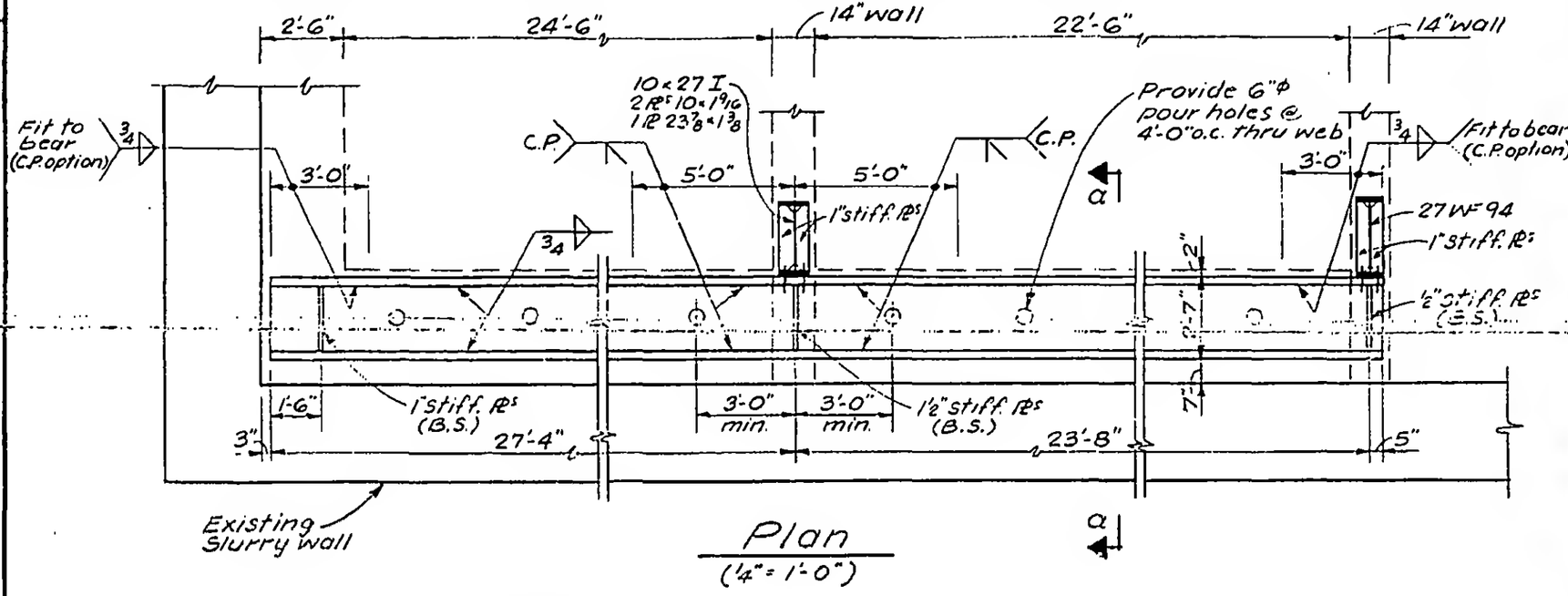
REVIEWED
E.L.

SKILLING, HELLE, CHRISTIANSEN, ROBERTSON — Structural & Civil Engineers

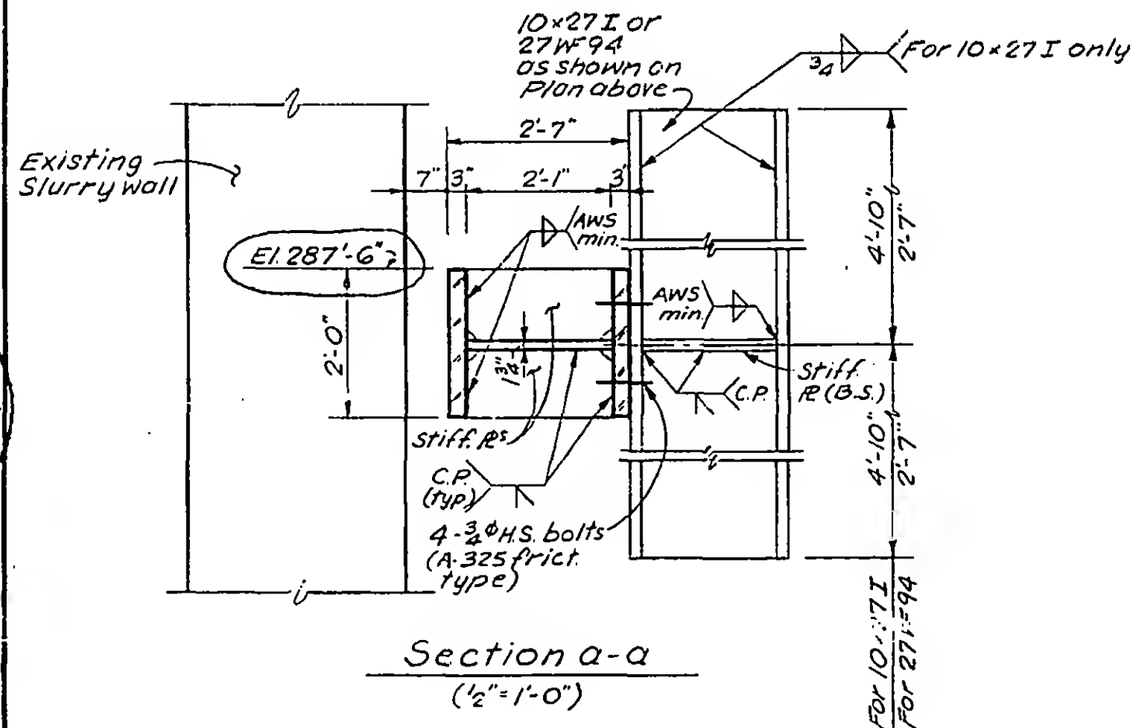
PROJECT THE WORLD TRADE CENTER | TITLE DETAILS OF PLATE GIRDER | DATE 9-17-69

REVISIONS

4-8-70



Plan
(1/4"=1'-0")



Section a-a
(1/2"=1'-0")

Notes:
1. All material shown to have Fy=42 ksi.
2. All welds to be E70xx

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DRAWN S.C.

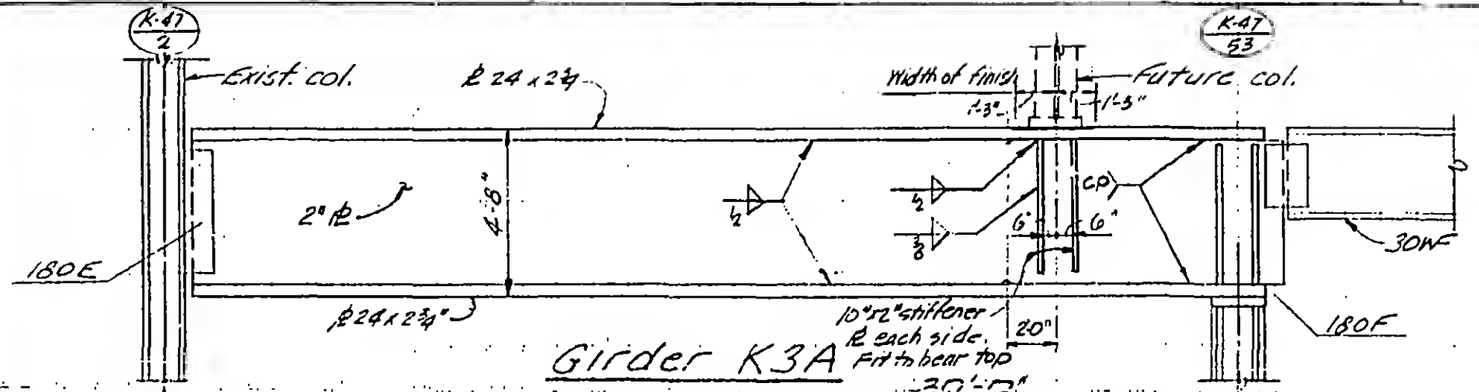
REVIEWED E.L.

12-JK2-176

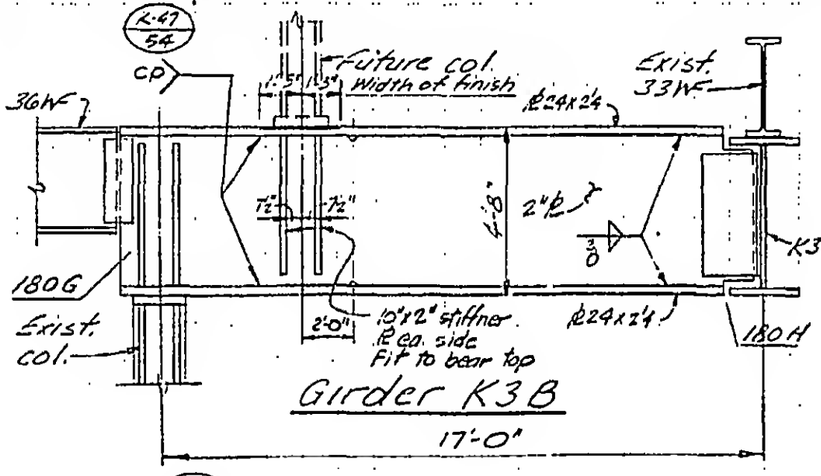
SKILLING, HELLE, CHRISTIANSEN, ROBERTSON — Structural & Civil Engineers

PROJECT: THE WORLD TRADE CENTER | TITLE: GIRDERS EL 310 | DATE: 9/15/71

REVISIONS

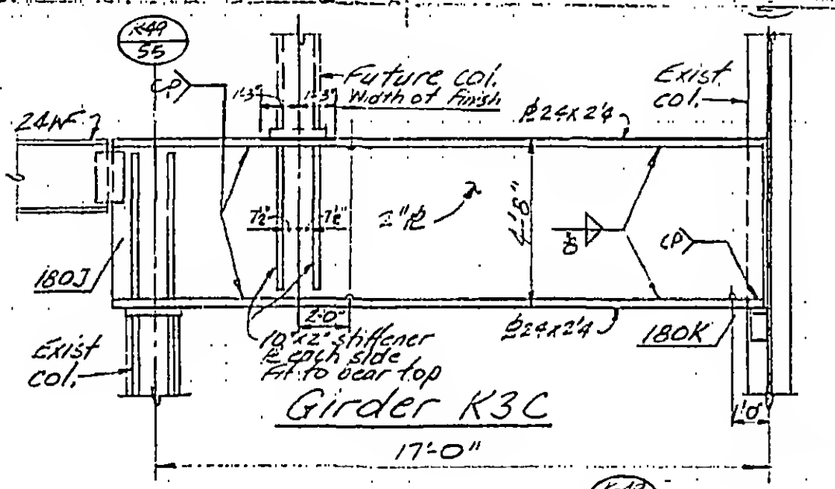


Girder K3A



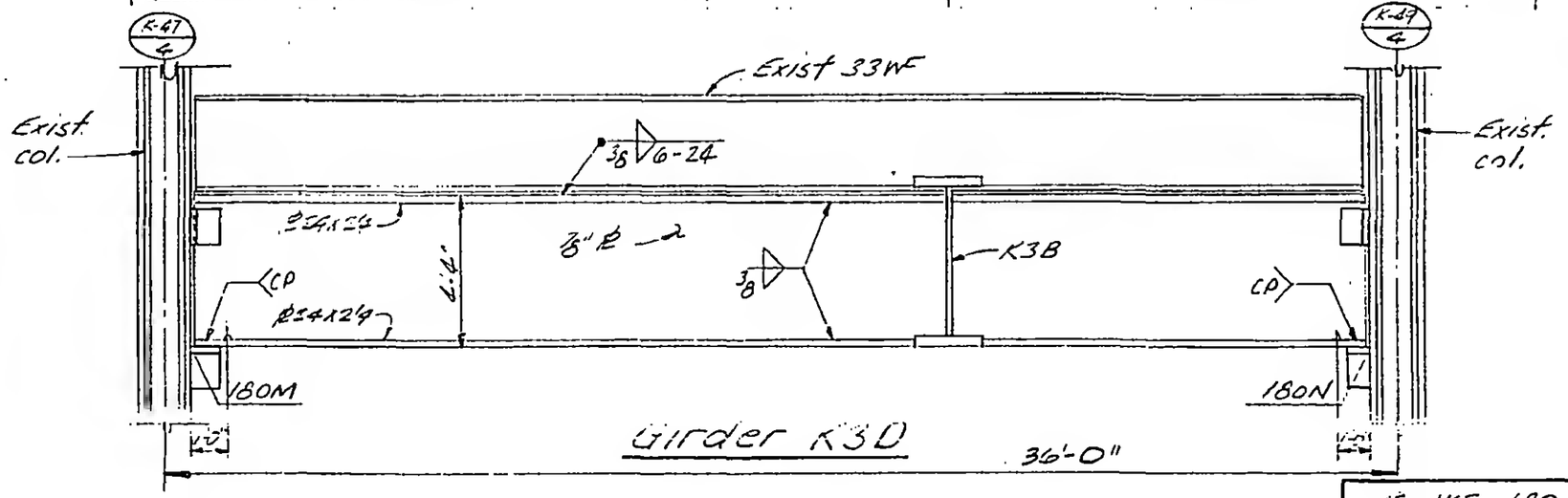
Girder K3B

17'-0"



Girder K3C

17'-0"



Girder K3D

36'-0"

12-JKZ-180.1

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DESIGNED

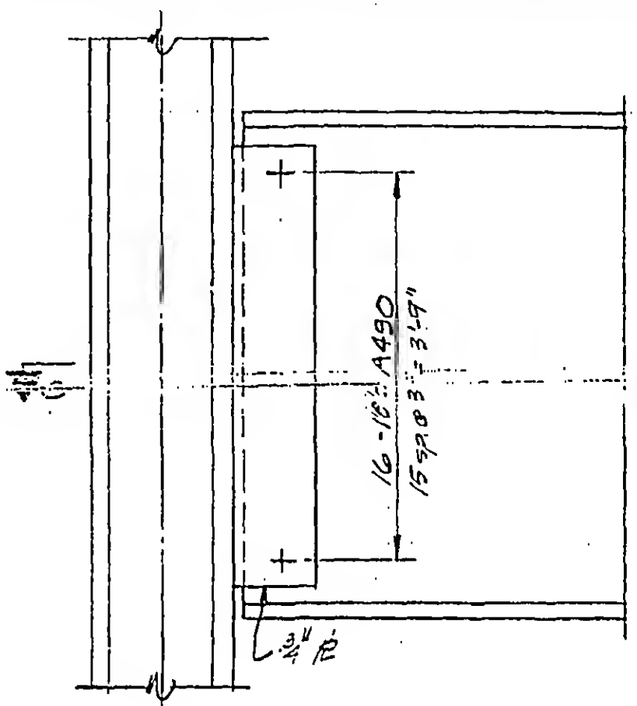
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REVIEWED

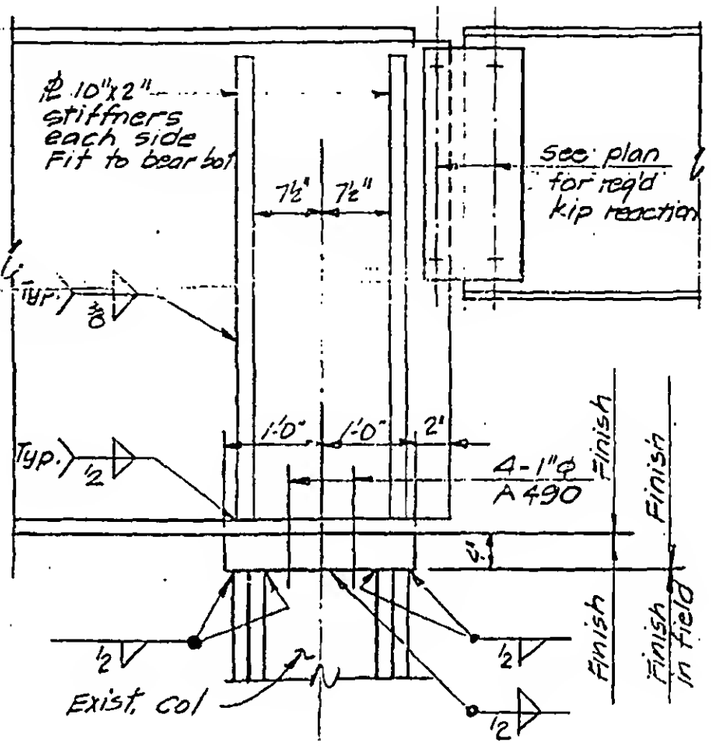
SKILLING, HELLE, CHRISTIANSEN, ROBERTSON — Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE GIRDER DETAILS ELEVATION 310 | DATE 9-15-71

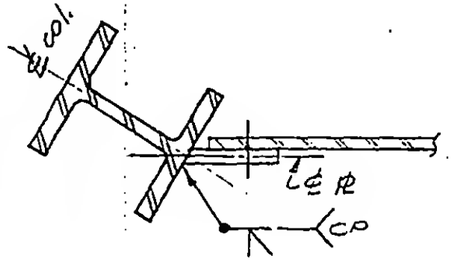
REVISIONS



Detail 180 E



Detail 180F



Section e-e

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DESIGNED

DRAWN

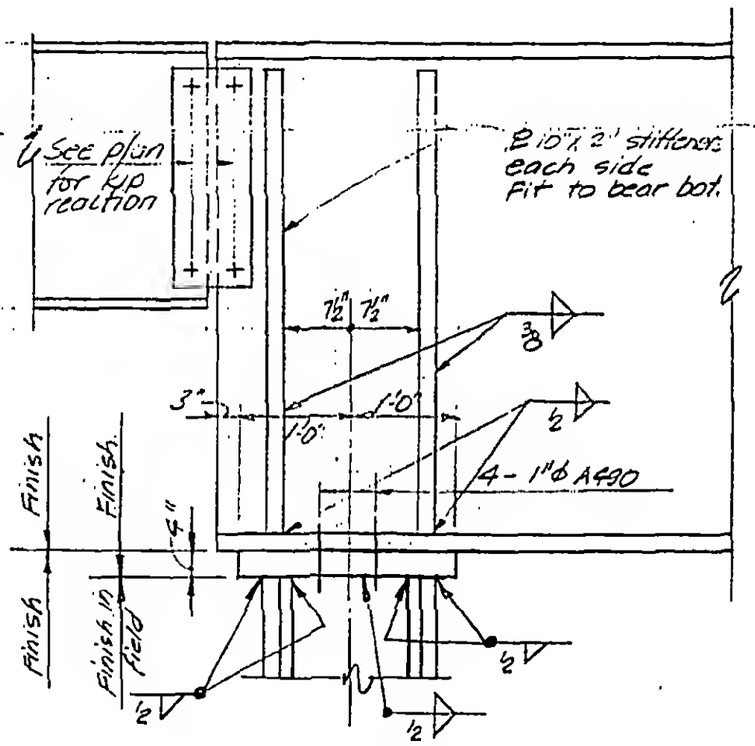
REVIEWED

12-JK2-180.2

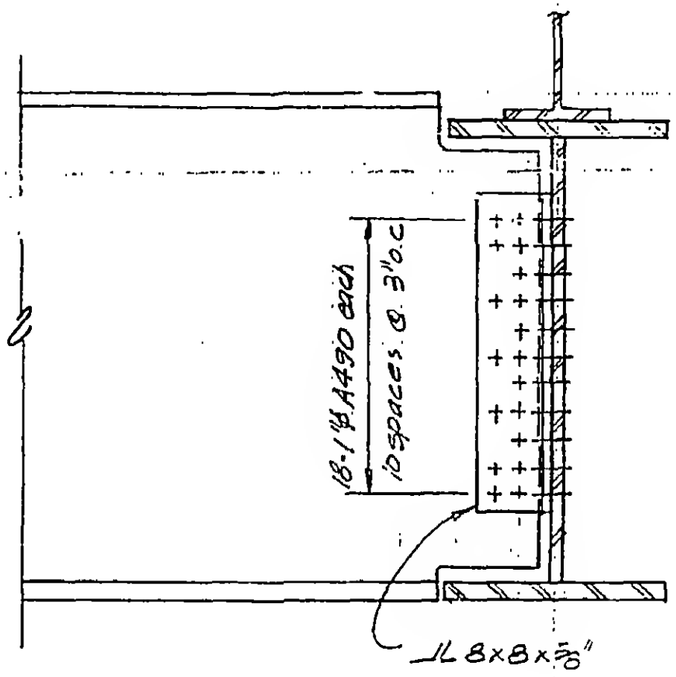
SKILLING, HELLE, CHRISTIANSEN, ROBERTSON — Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE GIRDER DETAILS ELEVATION 310 | DATE 9-15-71

REVISIONS



Detail 180 G
Detail 180 J



Detail 180 H

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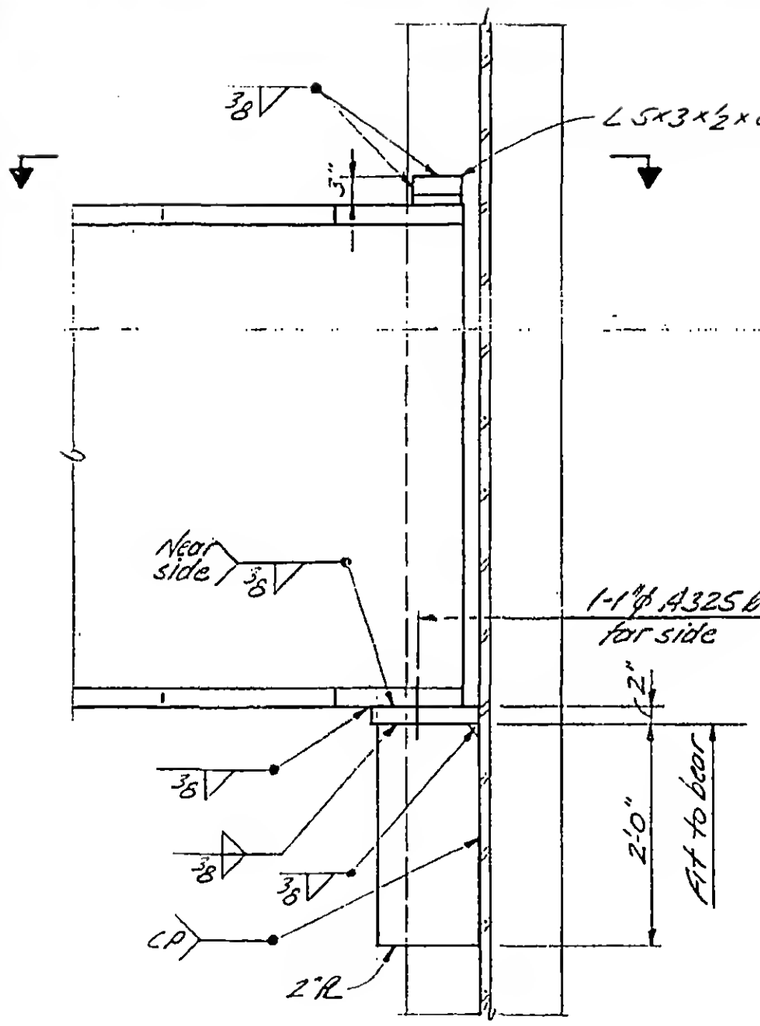
DESIGNED
DRAWN
REVIEWED

12-JK2-180.3

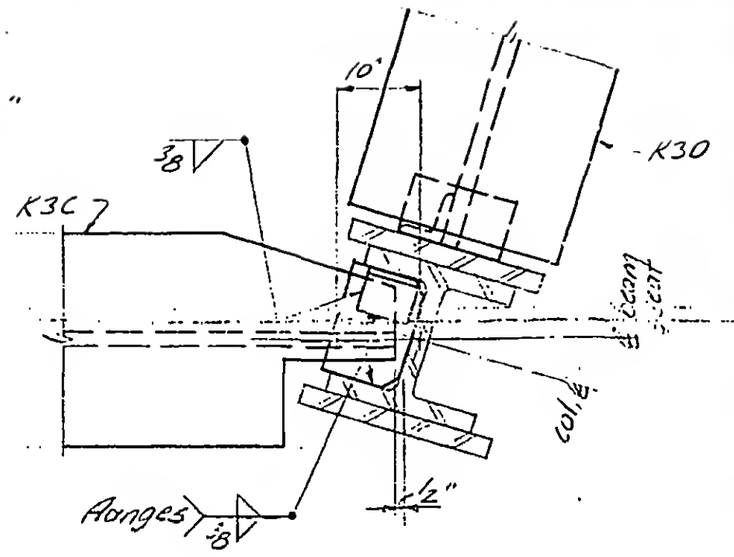
SKILLING, HELLE, CHRISTIANSEN, ROBERTSON — Structural & Civil Engineers

PROJECT: THE WORLD TRADE CENTER | TITLE: GIRDER DETAILS EL 310 | DATE: 9-15-71

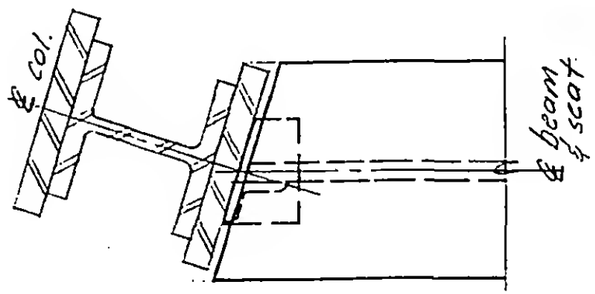
REVISIONS



180K



180 K℄N



180M

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No 34360
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DESIGNED

DRAWN J. Adams

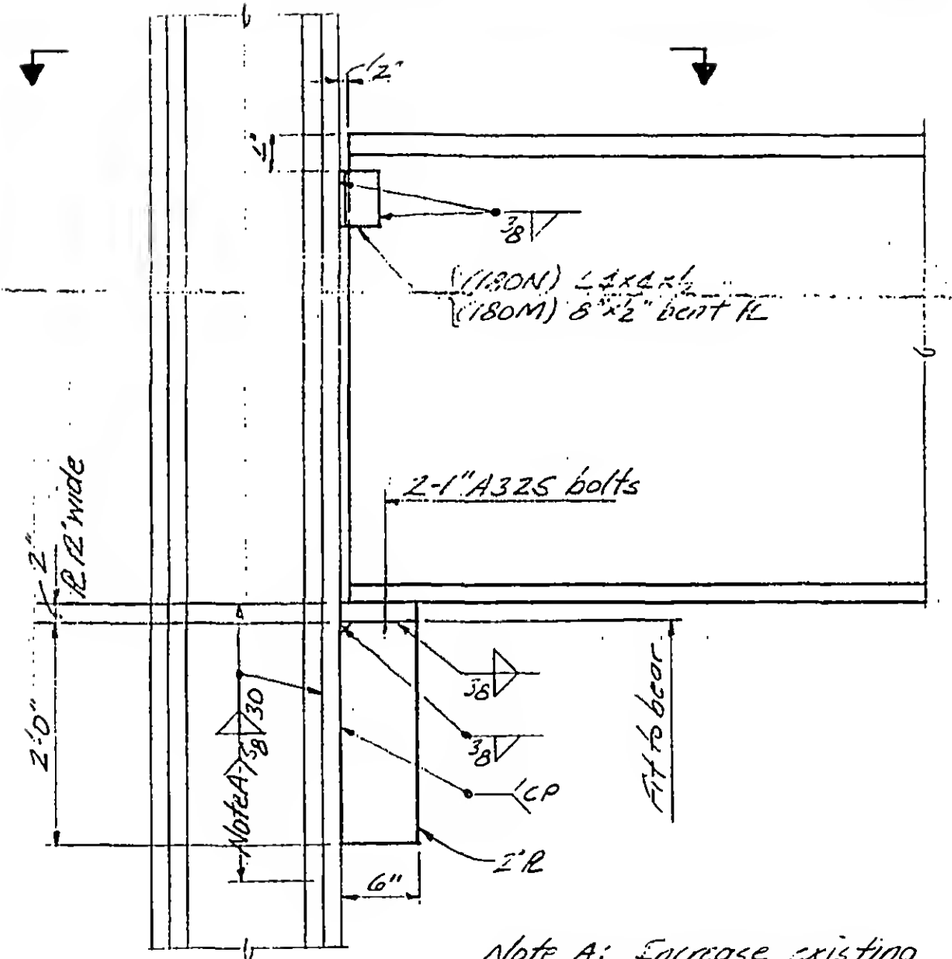
REVIEWED

12-JK2-180.4

SKILLING, HELLE, CHRISTIANSEN, ROBERTSON — Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE GIRDER DETAILS - EL 310 | DATE 9-15-71

REVISIONS



Note A: Increase existing weld to size shown.

180M
180N

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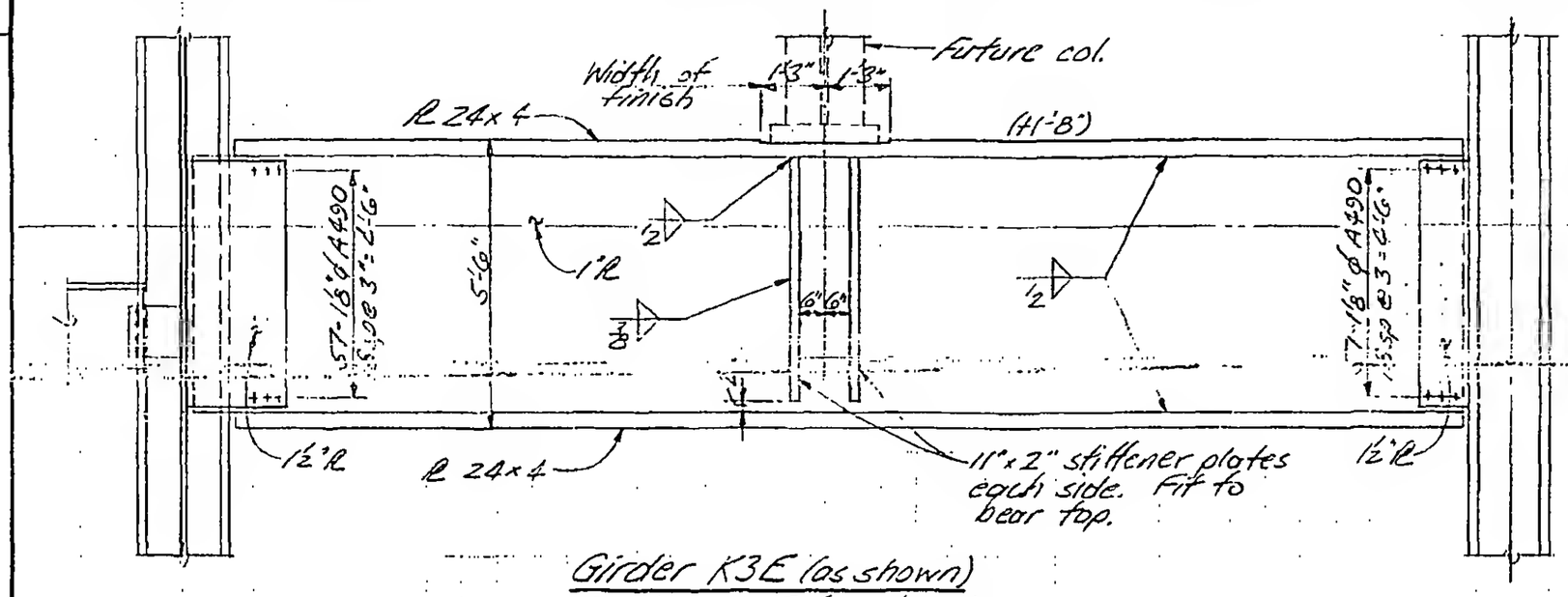
DESIGNED
DRAWN
REVIEWED

12-JK2-180.5

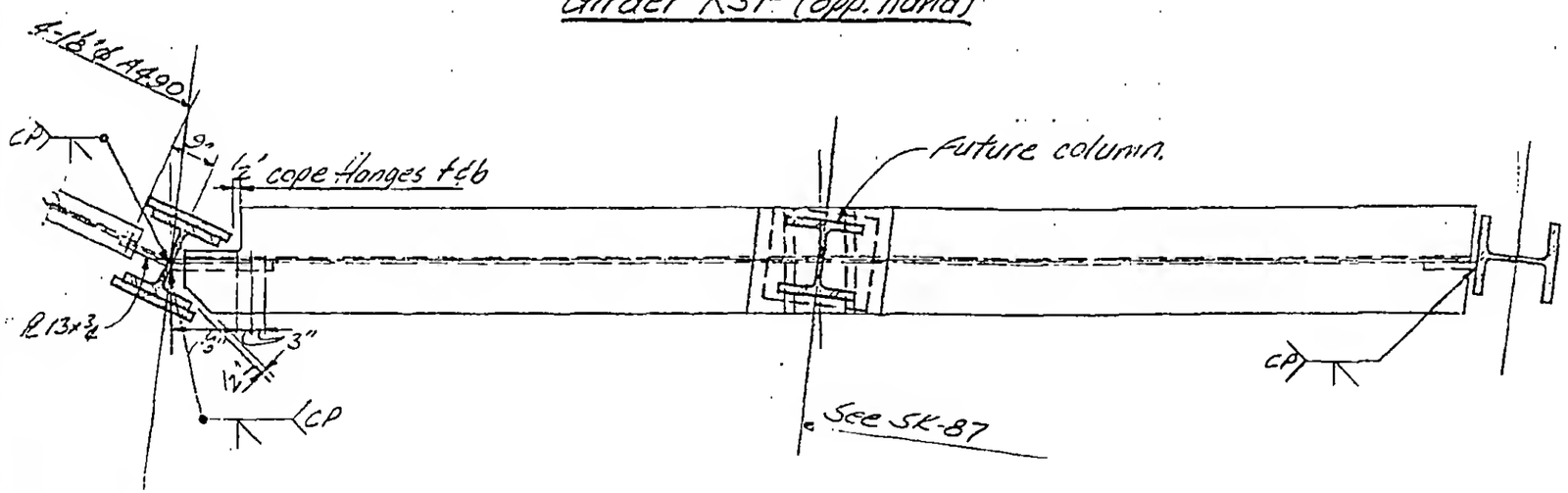
SKILLING, HELLE, CHRISTIANSEN, ROBERTSON — Structural & Civil Engineers

PROJECT: THE WORLD TRADE CENTER | TITLE: NEW GIRDERS K3E & K3F - EL. 294 | DATE: 1-15-72

REVISIONS



Girder K3E (as shown)
Girder K3F (opp. hand)



Plan

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DESIGNED

DRAWN

REVIEWED LD Brewer

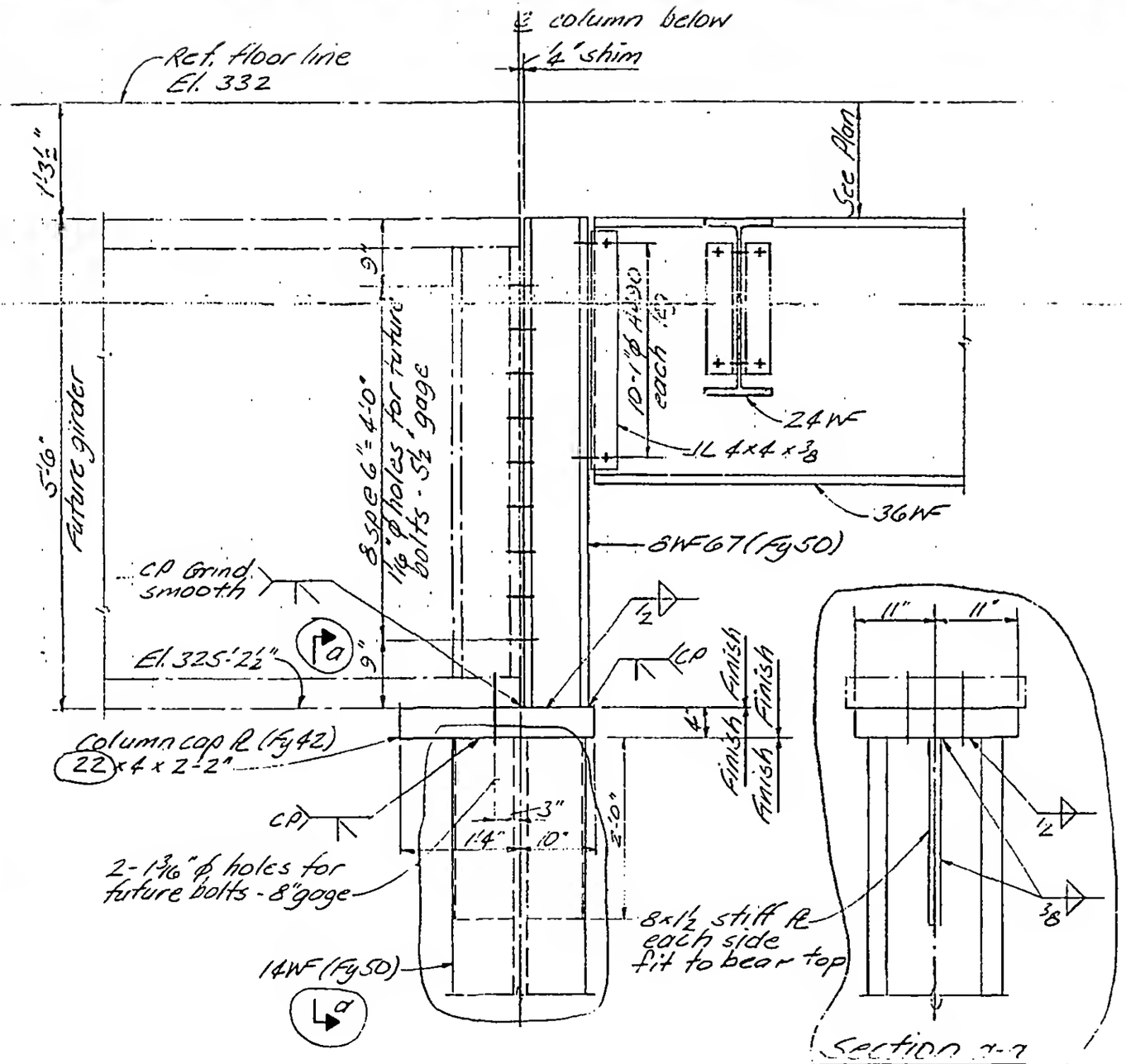
12-JK2-180.6

SKILLING, HELLE, CHRISTIANSEN, ROBERTSON — Structural & Civil Engineers

PROJECT: THE WORLD TRADE CENTER | TITLE: GIRDER DETAILS - EL 332 | DATE: 1-15-72

REVISIONS

1/25/72



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DESIGNED

DRAWN
J Adams

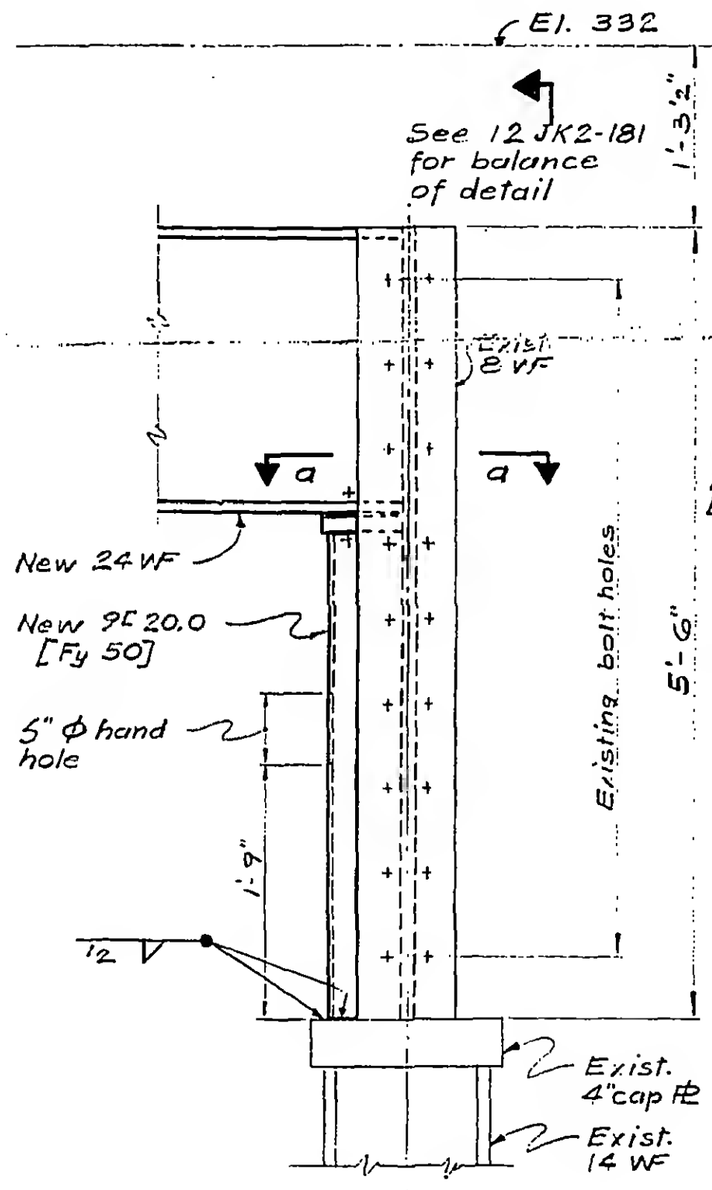
REVIEWED
W Brewer

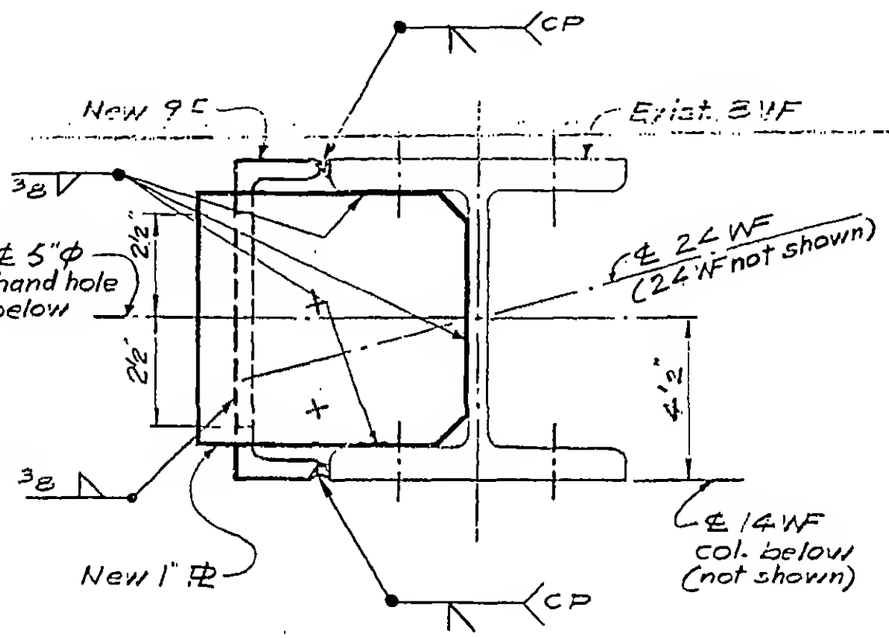
12-JK2-181

SKILLING, HELLE, CHRISTIANSEN, ROBERTSON — Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE DETAILS - EL 332 | DATE 4-7-72

REVISIONS





Section a-a

LICENSED PROFESSIONAL ENGINEER — LESLIE E. ROBERTSON — No 34360 — UNIVERSITY OF THE STATE OF NEW YORK

DESIGNED

DRAWN H.A.W.

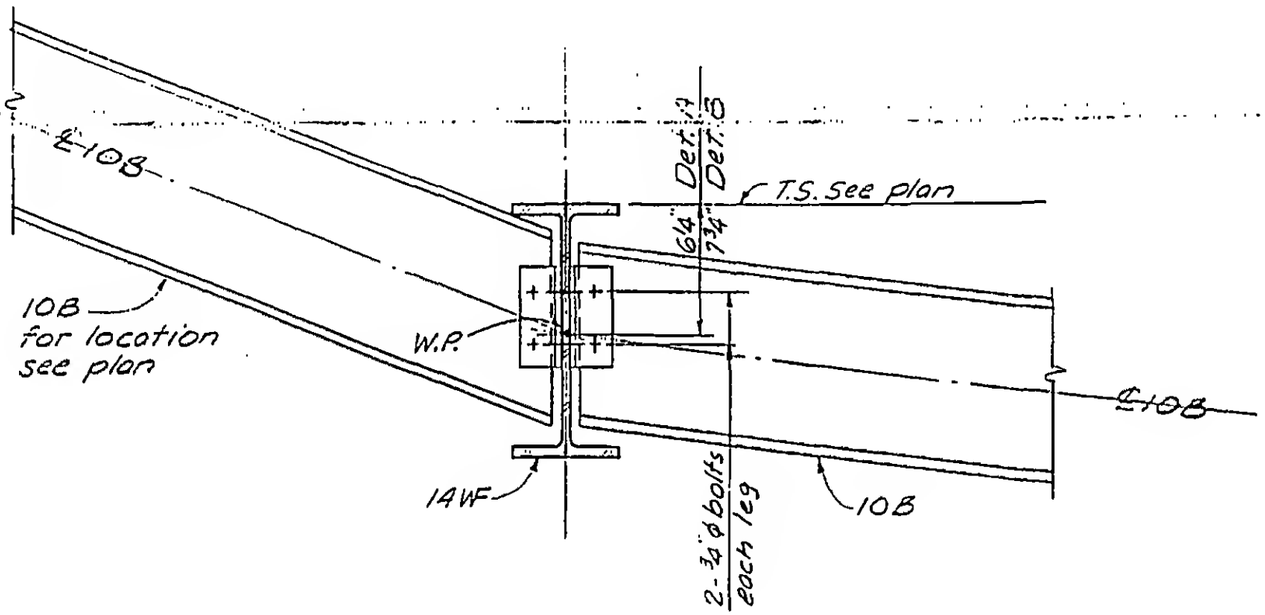
REVIEWED

12-JK2-182

SKILLING, HELLE, CHRISTIANSEN, ROBERTSON — Structural & Civil Engineers

PROJECT: THE WORLD TRADE CENTER | TITLE: BEAM CONNECTION DETAIL | DATE: 4-7-72

REVISIONS



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NO 34360
UNIVERSITY OF THE STATE OF NEW YORK

DESIGNED

DRAWN
A. Franyui

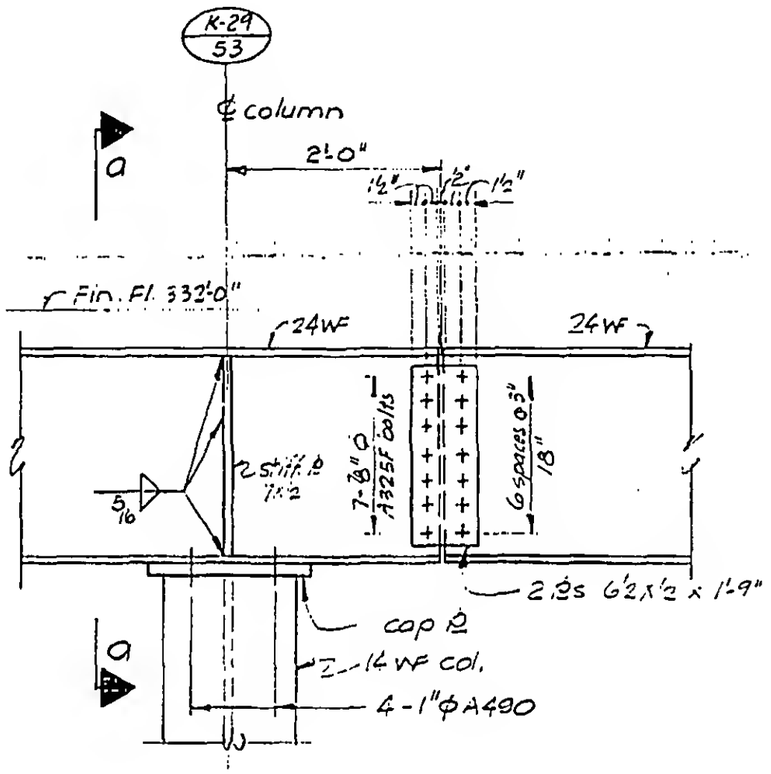
REVIEWED

12-JK2-183

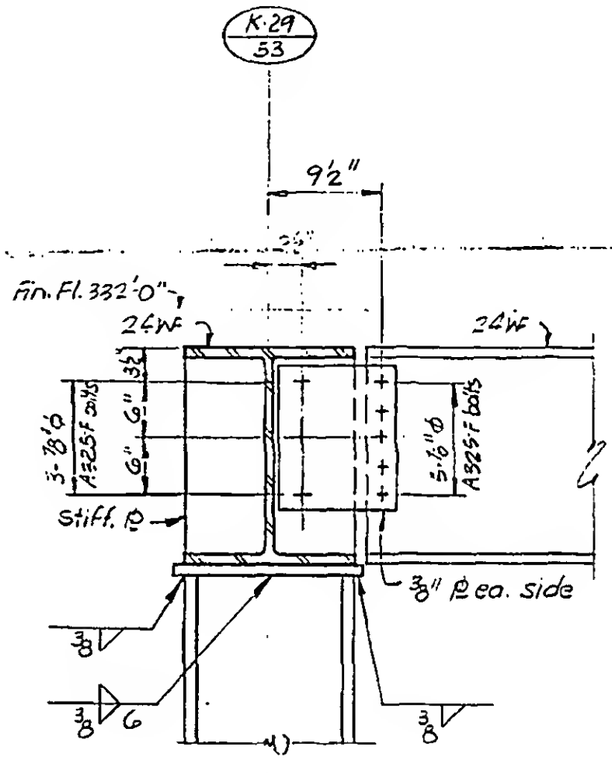
SKILLING, HELLE, CHRISTIANSEN, ROBERTSON — Structural & Civil Engineers

PROJECT: THE WORLD TRADE CENTER | TITLE: CONNECTION DETAIL - EL. 332 | DATE: 6-9-72

REVISIONS



Detail A



Section a-a



DESIGNED: AR
DRAWN: pullrich
REVIEWED:

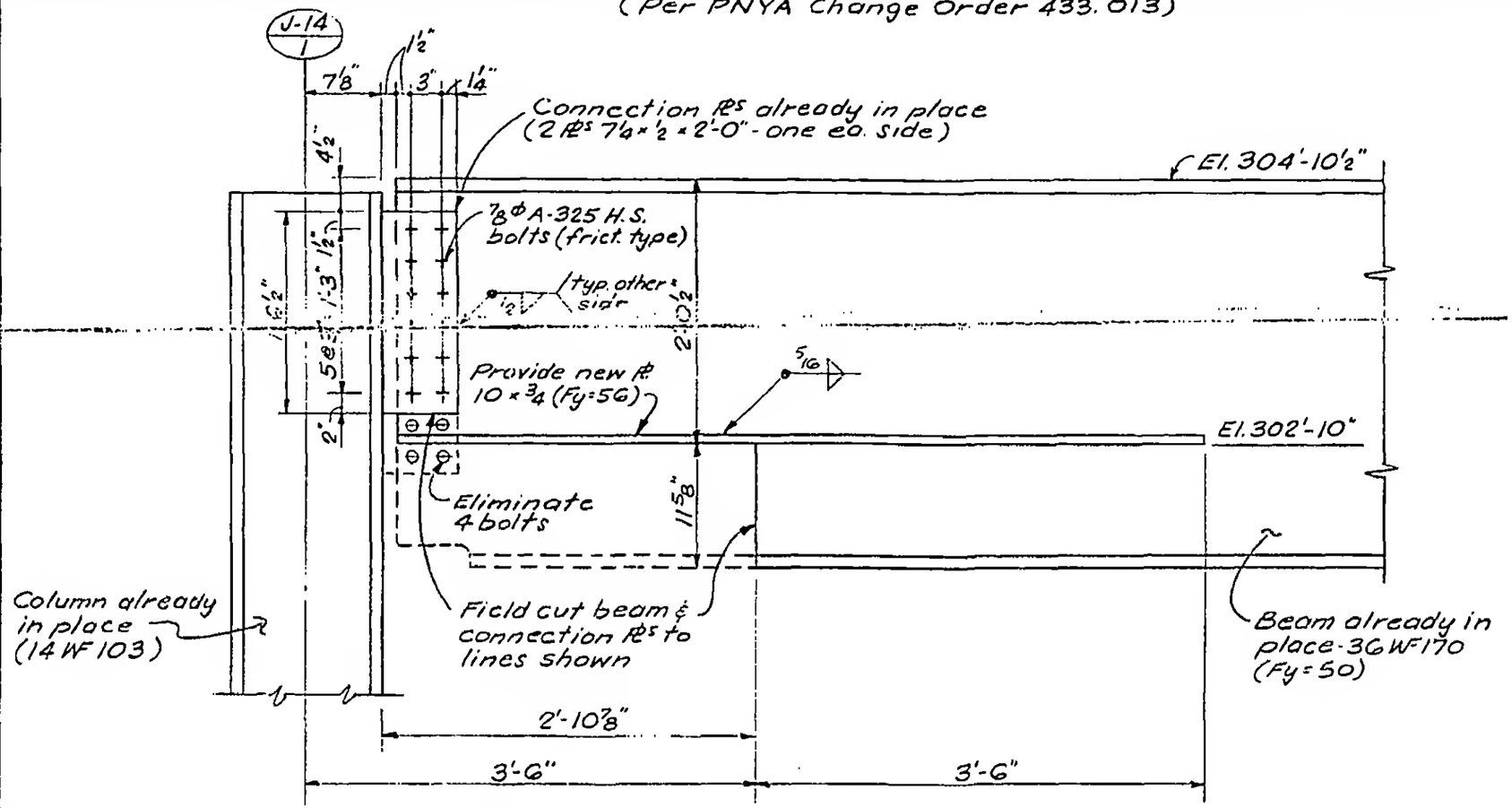
12-JK2-184

SKILLING, HELLE, CHRISTIANSEN, ROBERTSON — Structural & Civil Engineers

PROJECT: THE WORLD TRADE CENTER | TITLE: DETAIL FOR "NOTCHING" BEAM ALREADY IN PLACE | DATE: 1-23-69

(Per PNYA Change Order 433.013)

REVISIONS



Location of beam — Zone J-3
(street level) East of column J14-1
as shown on Dwg. SJ-93

Notes:
1. All field work to be carried out under contract WTC-230.00 and to be completed before any concreting work in this area.
2. All welds to be E70xx.

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DESIGNED

DRAWN
S.C.

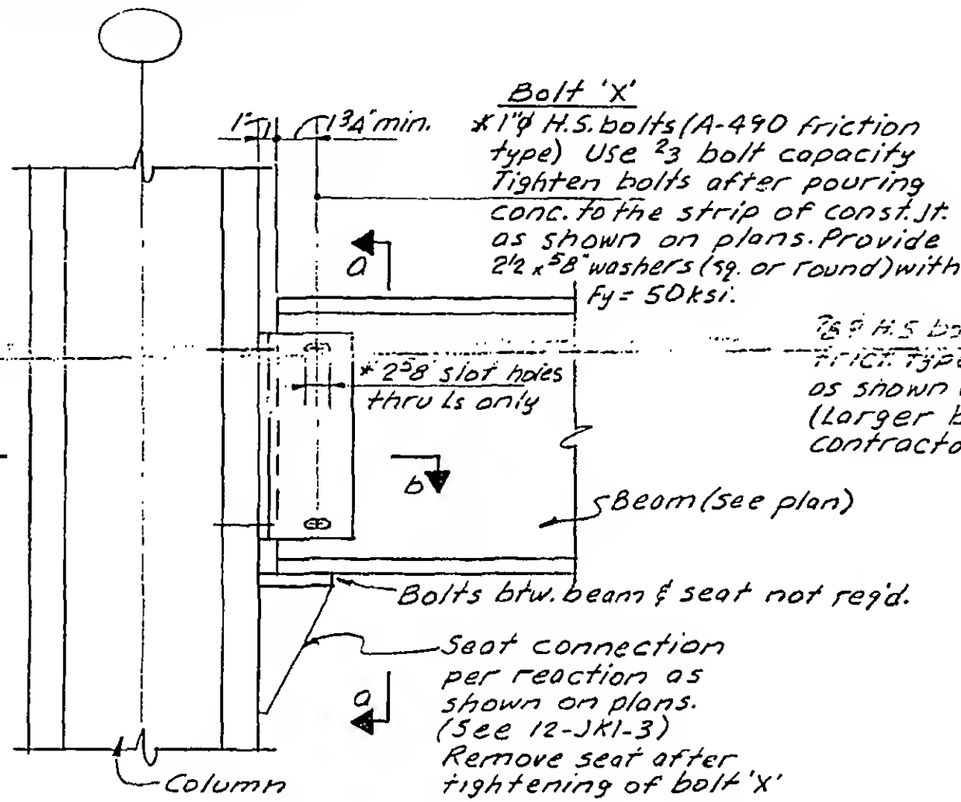
REVIEWED
E.L.

12-JK2-199

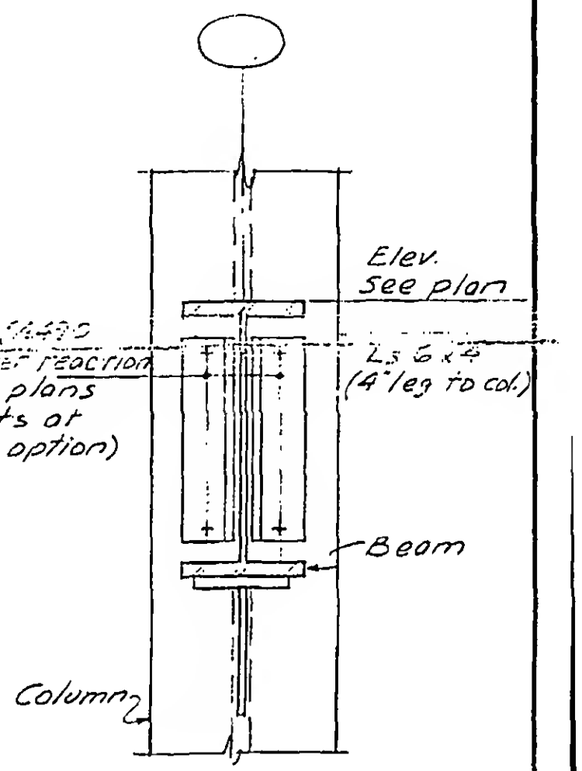
SKILLING, HELLE, CHRISTIANSEN, ROBERTSON — Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE CONSTRUCTION JOINT DETAIL | DATE 12-3-68

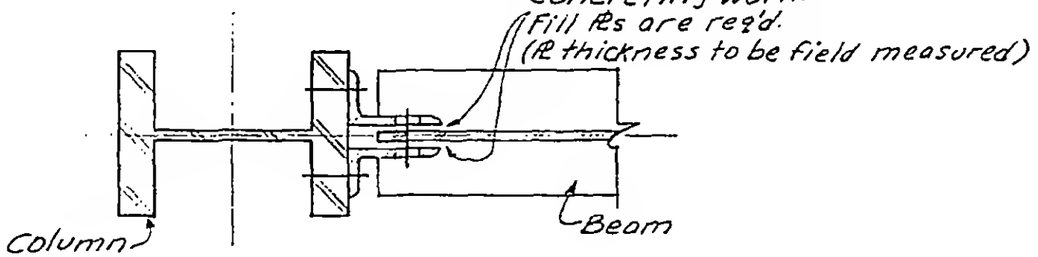
REVISIONS



ELEVATION



Section a-a



Section b-b

Note:
1. * — For col's. J7-3 thru 5 use 1'8"ϕ bolts with 2¾" slot holes.

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No. 34360
UNIVERSITY OF THE STATE OF NEW YORK

DESIGNED

DRAWN

REVIEWED

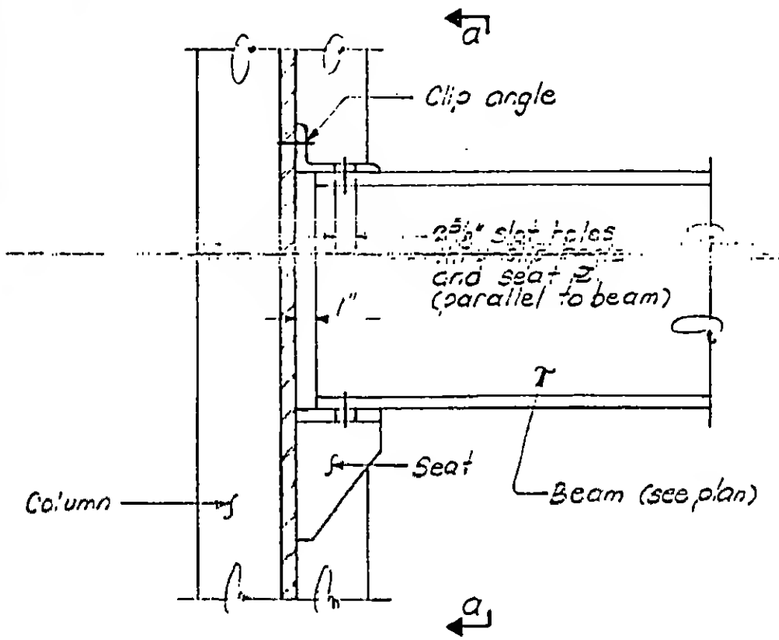
12-JK3-2

SKILLING, HELLE, CHRISTIANSEN, ROBERTSON — Structural & Civil Engineers

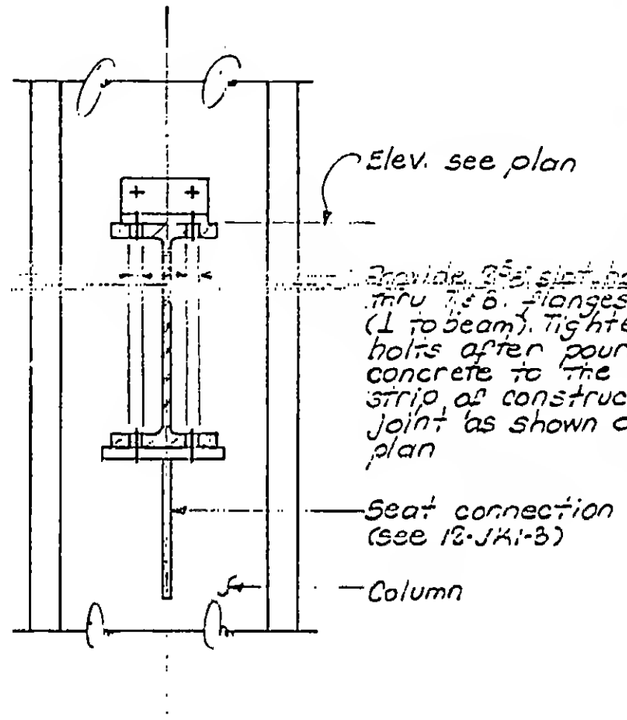
PROJECT THE WORLD TRADE CENTER | TITLE CONSTRUCTION JOINT DETAIL | DATE 12-3-68

REVISIONS

1-3-69



ELEVATION



Section a-a

FOR BEAMS WITH FLANGES LARGER THAN 10"

(For beam flanges less than 10", see 12-JK3-4)

Notes:

1. Provide washers 2½x5/16 (square or round) with Fy=50 ksi for all bolts over slot holes
2. Where seat interferes with bosom Rs, these Rs may be eliminated.

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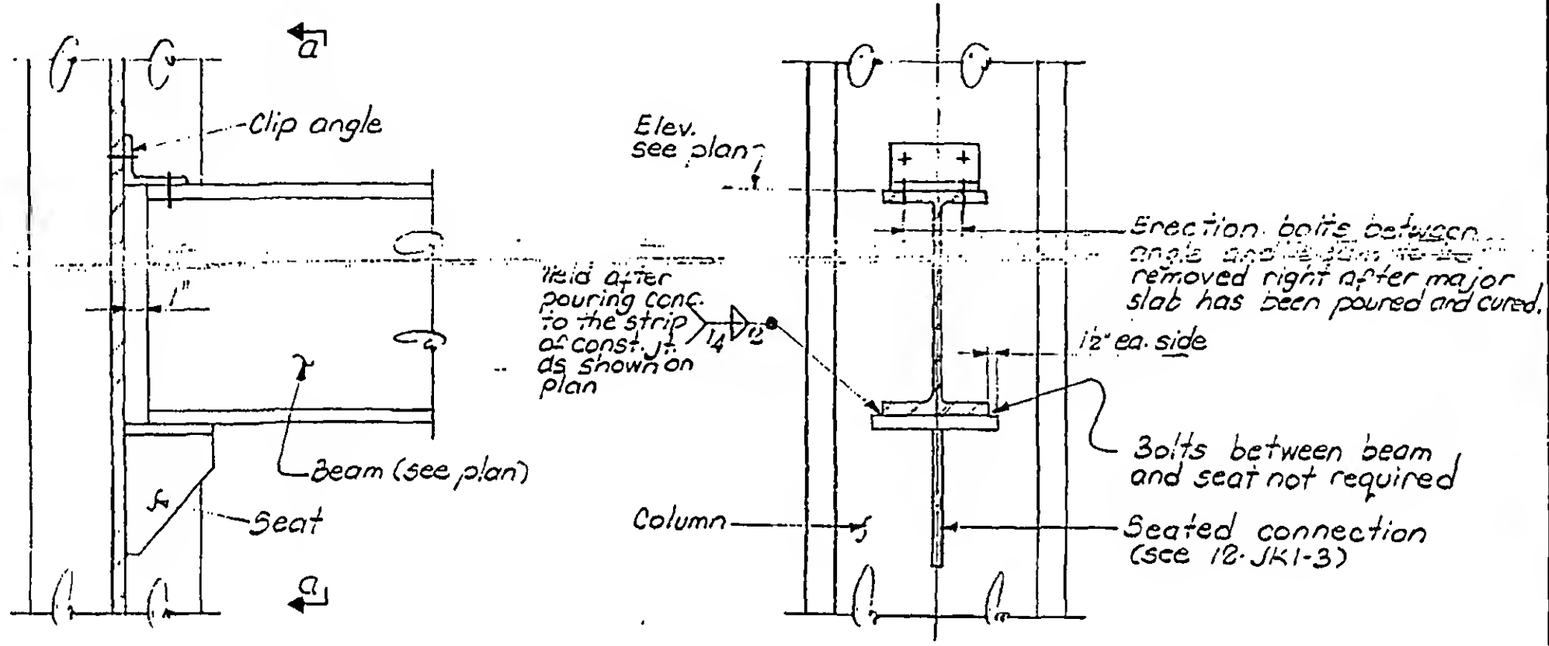
12-JK3-3

SKILLING, HELLE, CHRISTIANSEN, ROBERTSON — Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE CONSTRUCTION JOINT DETAIL | DATE 12-3-68

REVISIONS

1-3-69



ELEVATION — Section a-a

FOR BEAMS WITH FLANGES LESS THAN 10"
(For beam flanges greater than 10", see 12-JK3-3)

Note:
1. Where seat interferes with bosom Rs, these Rs may be eliminated.

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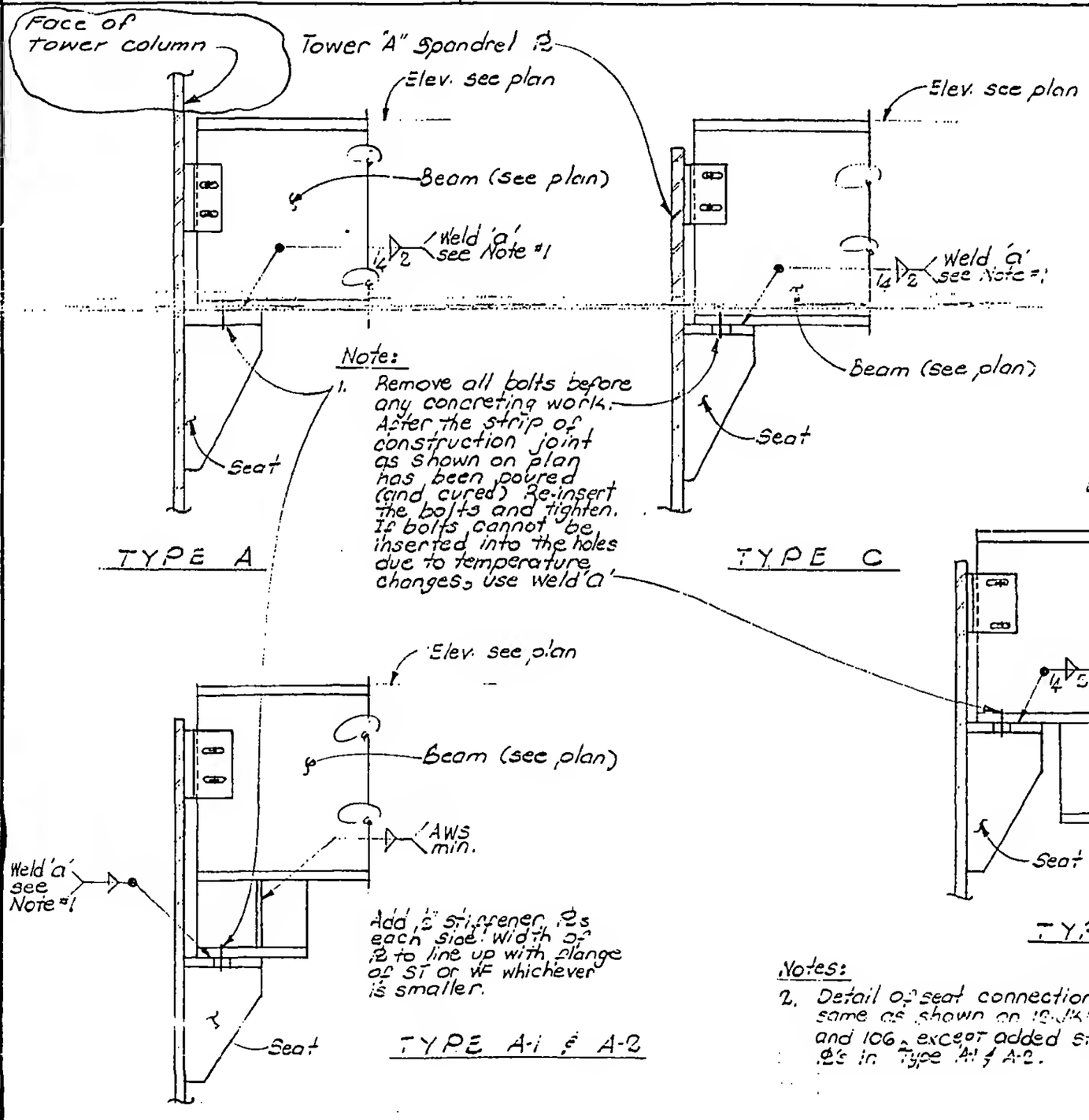
12-JK3-4

SKILLING, HELLE, CHRISTIANSEN, ROBERTSON — Structural & Civil Engineers

PROJECT: THE WORLD TRADE CENTER | TITLE: CONSTRUCTION JOINT DETAIL | DATE: 12-3-68

REVISIONS

1-3-69

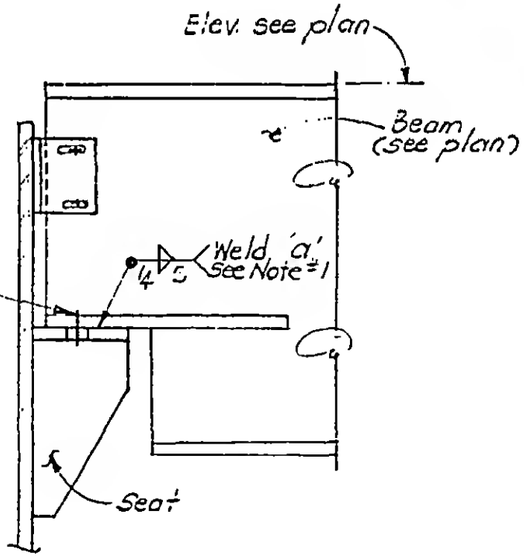


TYPE A

Note:

1. Remove all bolts before any concreting work. After the strip of construction joint as shown on plan has been poured (and cured) Re-insert the bolts and tighten. If bolts cannot be inserted into the holes due to temperature changes, use Weld 'a'

TYPE C



TYPE B

TYPE A-1 & A-2

Notes:

2. Detail of seat connections same as shown on 12-JK3.105 and 106 except added stiffener P's in Type A-1 & A-2.

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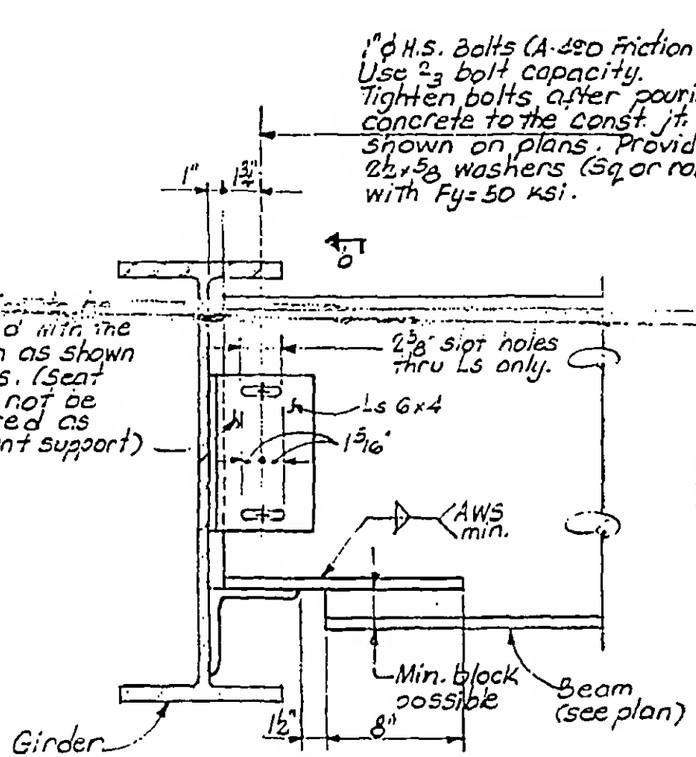
REVIEWED E.L.

12-JK3-5

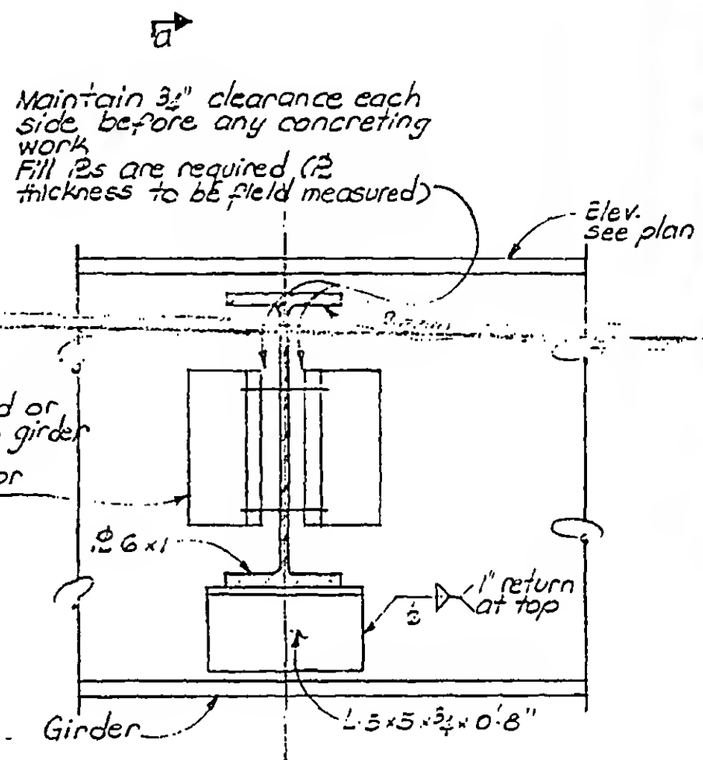
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PROJECT THE WORLD TRADE CENTER | TITLE CONSTRUCTION JOINT DETAIL | DATE 12-3-68

REVISIONS



Section a-a



Section b-b

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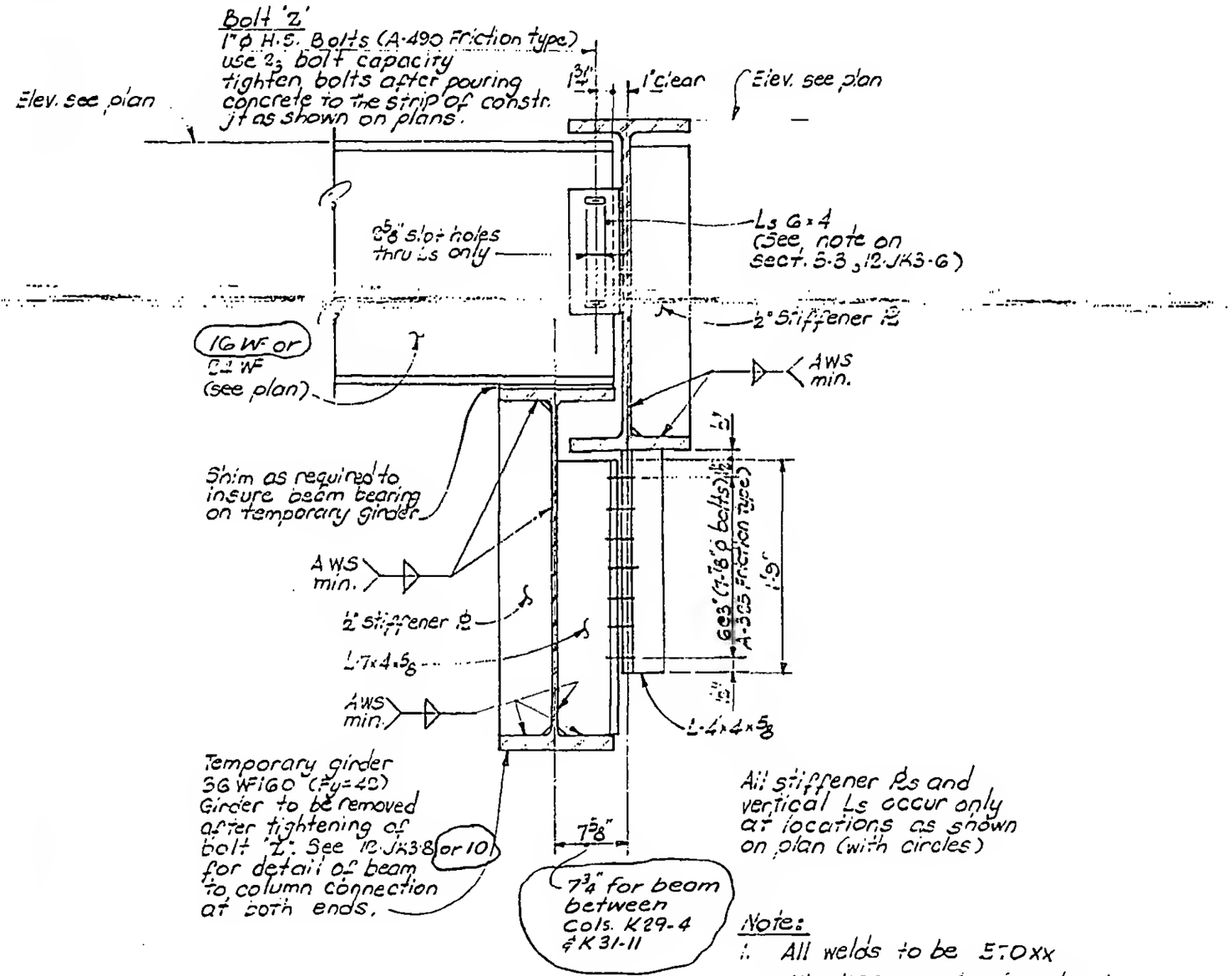
12-JK3-G

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PROJECT: THE WORLD TRADE CENTER | TITLE: CONSTRUCTION JOINT DETAIL | DATE: 12-3-68

REVISIONS

1-3-69



Note:

1. All welds to be E70xx
2. All stiffener PS & vertical Ls to have Fy=36 KSI.

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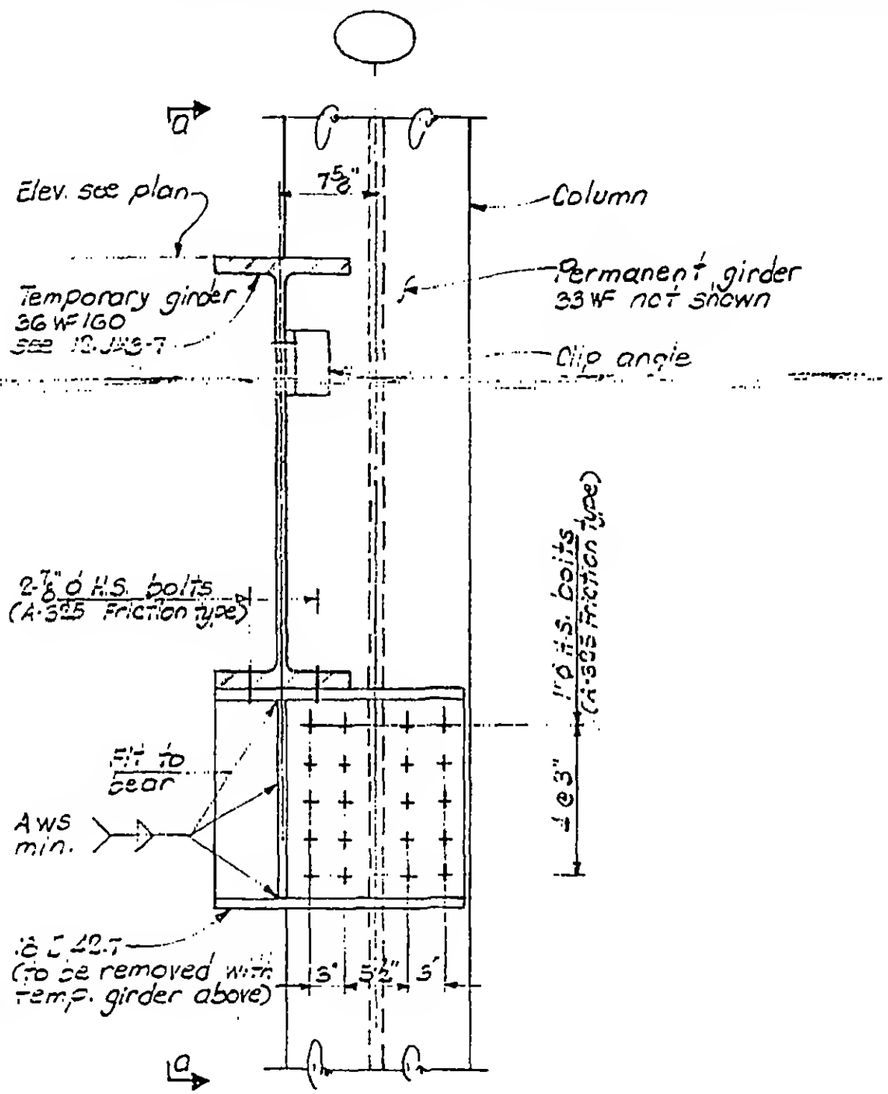
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12.JK3-7

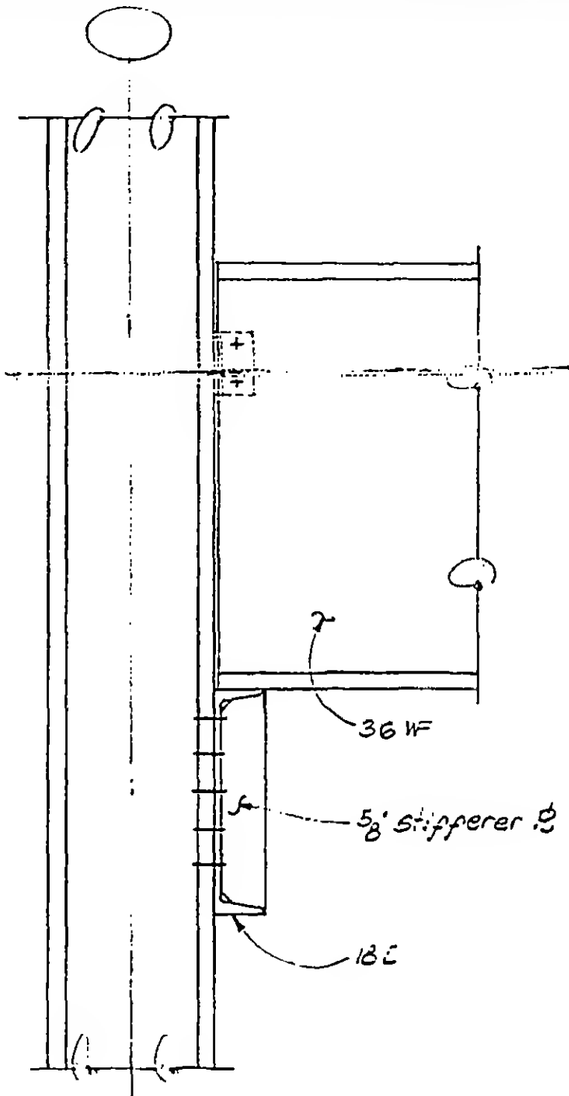
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PROJECT THE WORLD TRADE CENTER | TITLE CONSTRUCTION JOINT DETAIL | DATE 12-3-68

REVISIONS



ELEVATION



Section a-a

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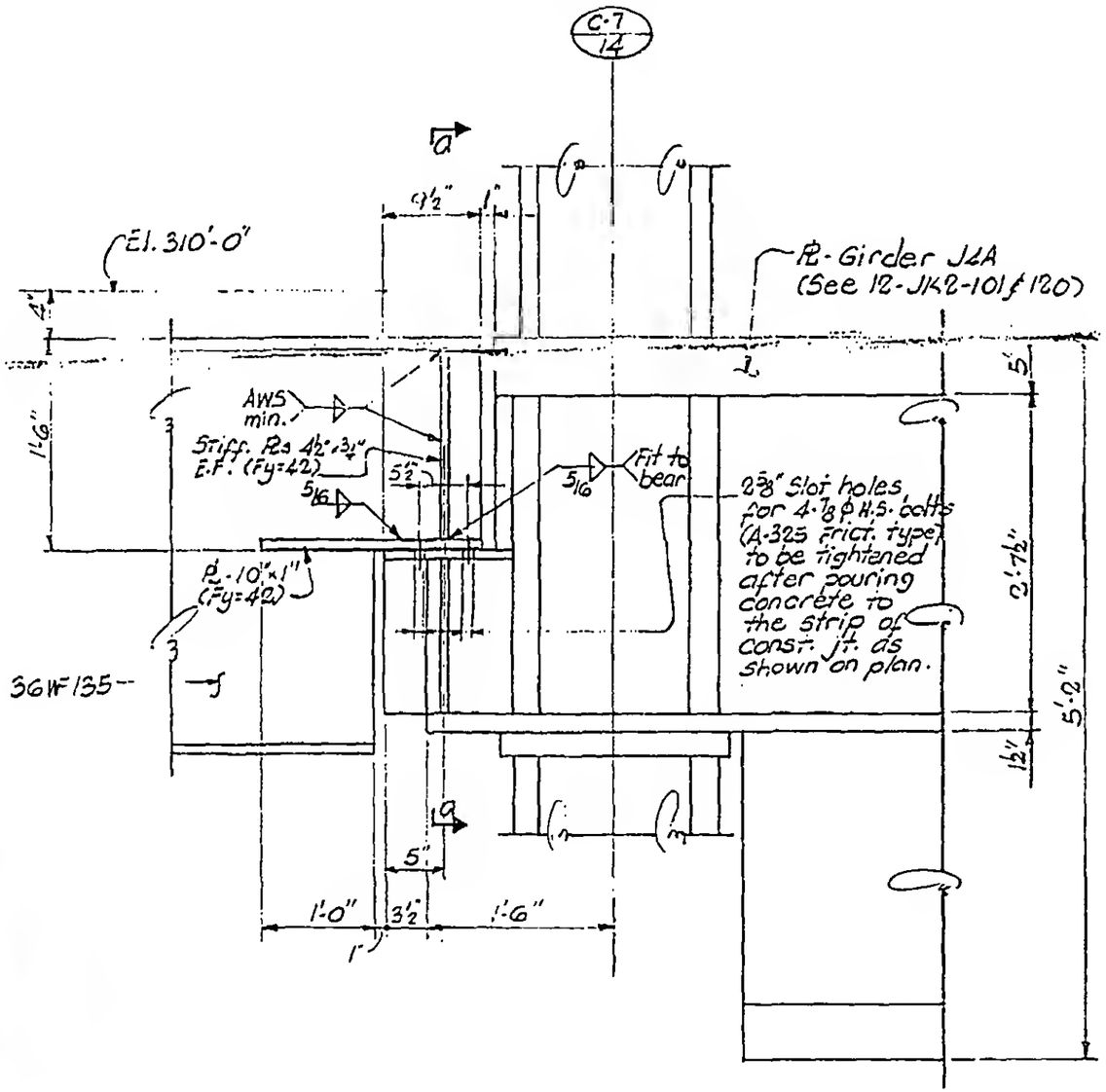
REVIEWED

12-JK3-8

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PROJECT THE WORLD TRADE CENTER | TITLE CONSTRUCTION JOINT DETAILS | DATE 1-3-69

REVISIONS



Section a-a

NOTES:
1. Provide washers 2½ x 5/8 (square or round) with Fy=50 ksi for all bolts over slot holes.

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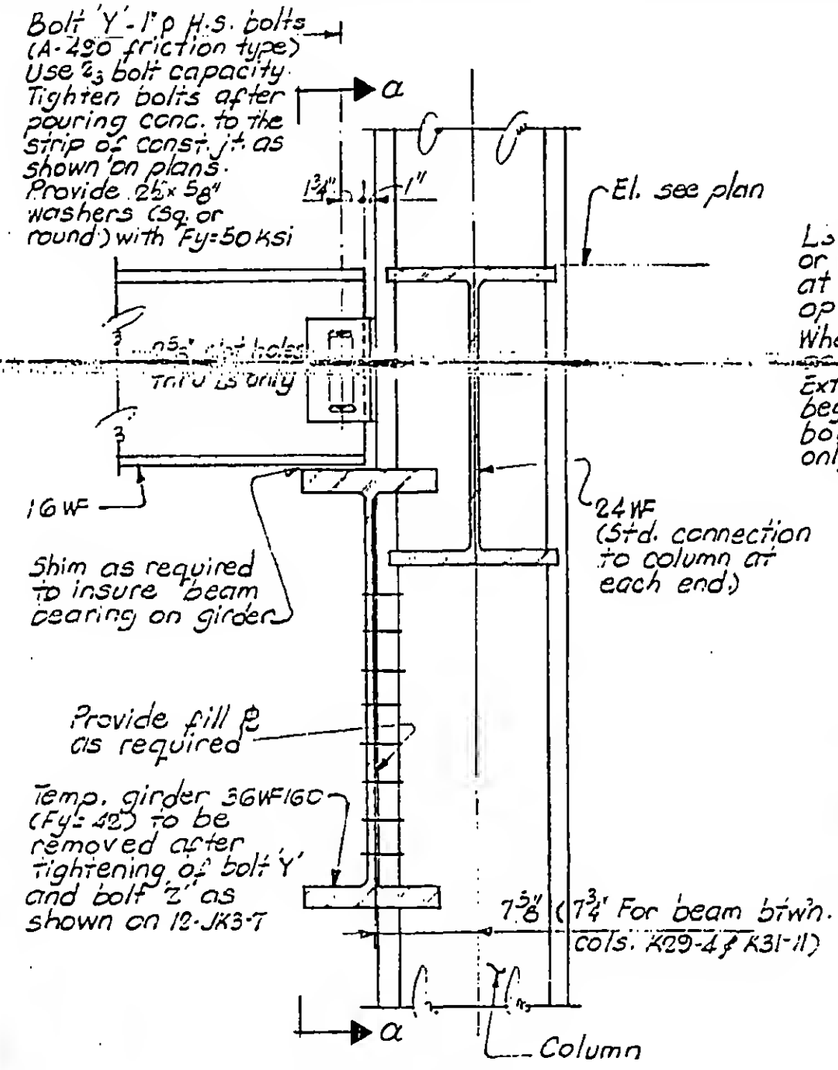
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12-JK3-9

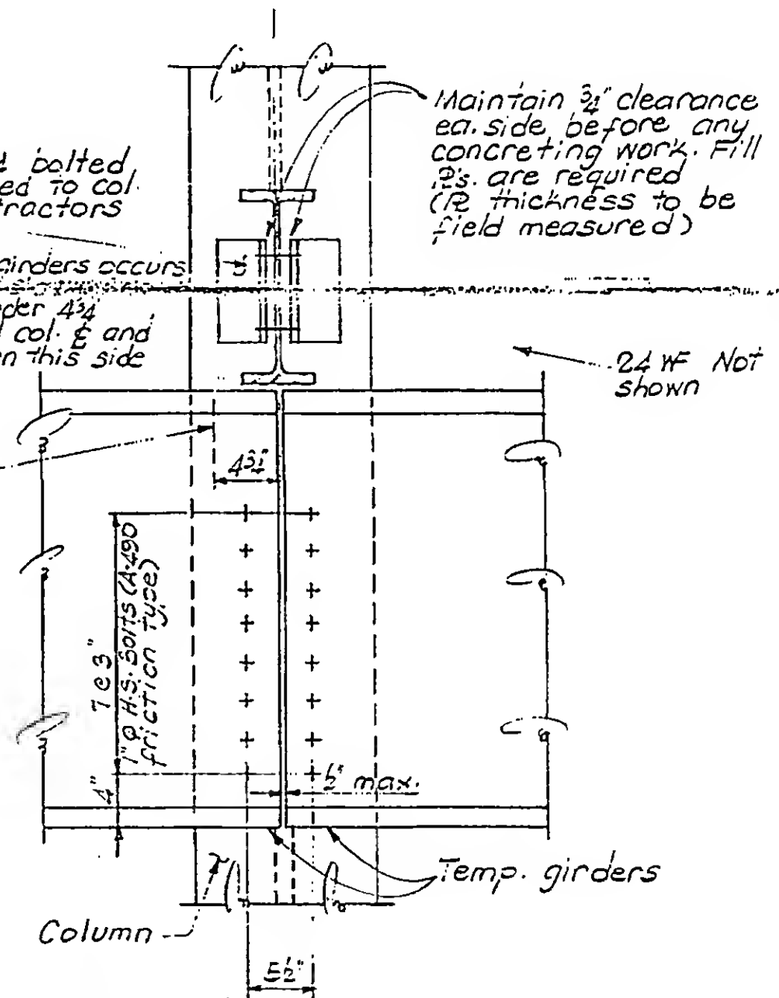
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PROJECT: THE WORLD TRADE CENTER | TITLE: CONSTRUCTION JOINT DETAIL | DATE: 1-3-69

REVISIONS



ELEVATION



Section a-a

NOTES:
1. All welds to be E70xx.

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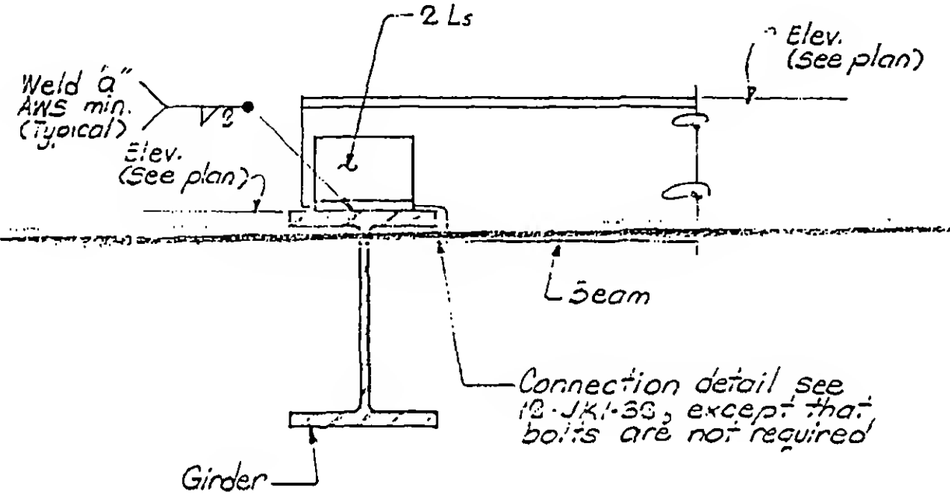
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12-JK3-10

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PROJECT THE WORLD TRADE CENTER | TITLE CONSTRUCTION JOINT DETAIL | DATE 1-3-69

REVISIONS



NOTES:

1. Weld 'a" to be carried out after pouring concrete to the construction joint.

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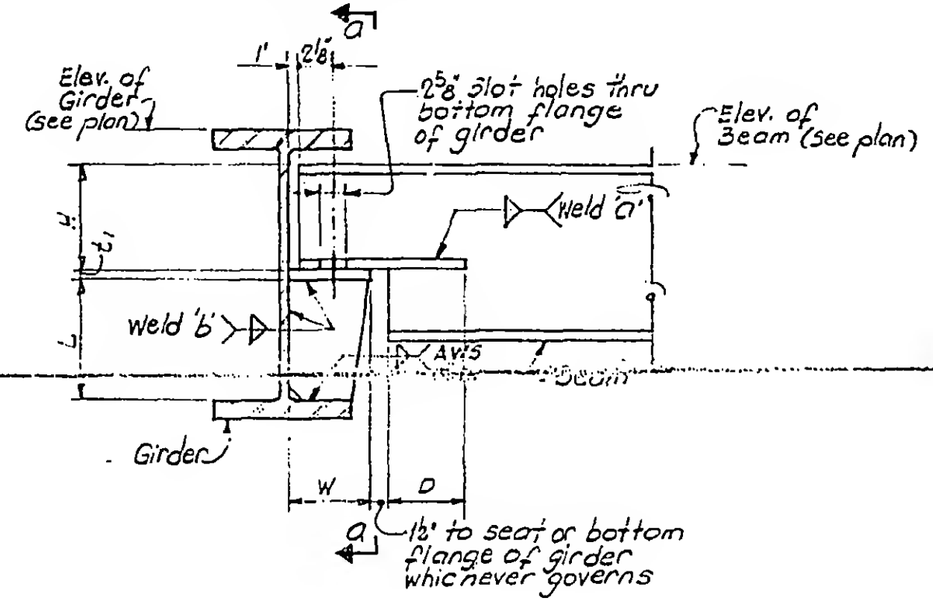
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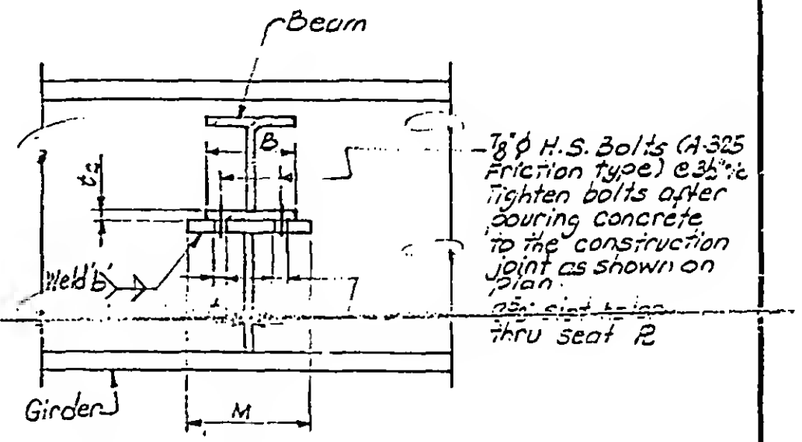
12-JK3-11

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PROJECT THE WORLD TRADE CENTER | TITLE CONSTRUCTION JOINT DETAIL | DATE 1-3-69

REVISIONS





Section a-a

NOTES:
1. All material to be Fy=42 KSI
2. All welds to be E70xx.
3. Provide washers 2½"x2½"x⅝" (round or square) with Fy=50 for all bolts over slot holes.

DETAIL No.	GIRDER		BEAM							SEAT				
	SIZE	ELEV.	SIZE	ELEV.	H	B	t_2	D	WELD 'a'	W	L	M	t_1	WELD 'b'
1	24WF110	309'-1"	16WF78	309'-1"	1'-2¼"	6"	1"	6"	5/16"	5"	9"	8"	1"	7/16"
2	36WF135	309'-1"	16WF71	309'-1"	NO BLOCKING					6"	17 9/16"	8"	1"	5/16"
3	36W135	309'-1"	16WF36	309'-1"	NO BLOCKING					6"	17 13/16"	8"	1"	5/16"
4	33WF141	289'-0½"	24WF68	289'-5"	1'-9 13/16"	8"	1"	8"	5/16"	5"	14"	8"	1"	5/16"
5	33WF141	289'-0½"	24WF84	289'-5"	1'-8 15/16"	8"	1"	9"	5/16"	5"	15"	8"	1"	5/16"
6	J4M	289'-3"	16831	289'-1"	NO BLOCKING					6"	29 5/8"	8"	1"	5/16"
7	30WF172	289'-5"	16831	289'-5"	NO BLOCKING					6"	12 15/16"	8"	1"	5/16"
8	33WF240	288'-6"	30WF108	289'-5"	NO BLOCKING					5"	11¼"	8"	1"	½"
9	33WF240	288'-6"	21WF73	288'-5"	1'-4⅞"	8"	1"	8"	5/16"	5"	13"	8"	1"	5/16"

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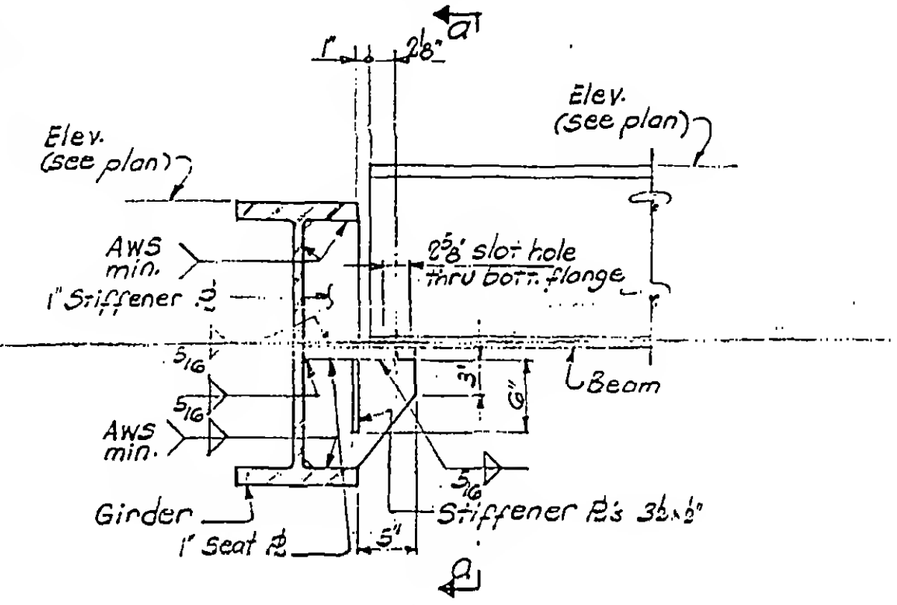
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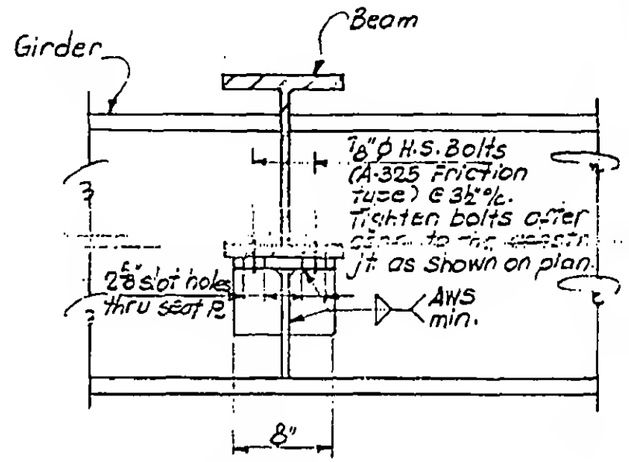
12-JK3-12

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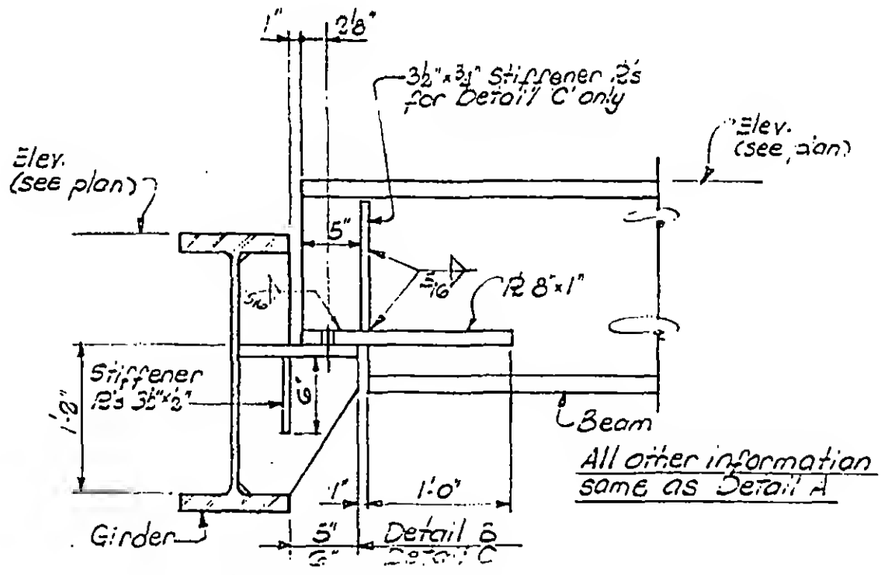
REVISIONS





Section a

DETAIL A



All other information same as Detail A

DETAIL B

DETAIL C

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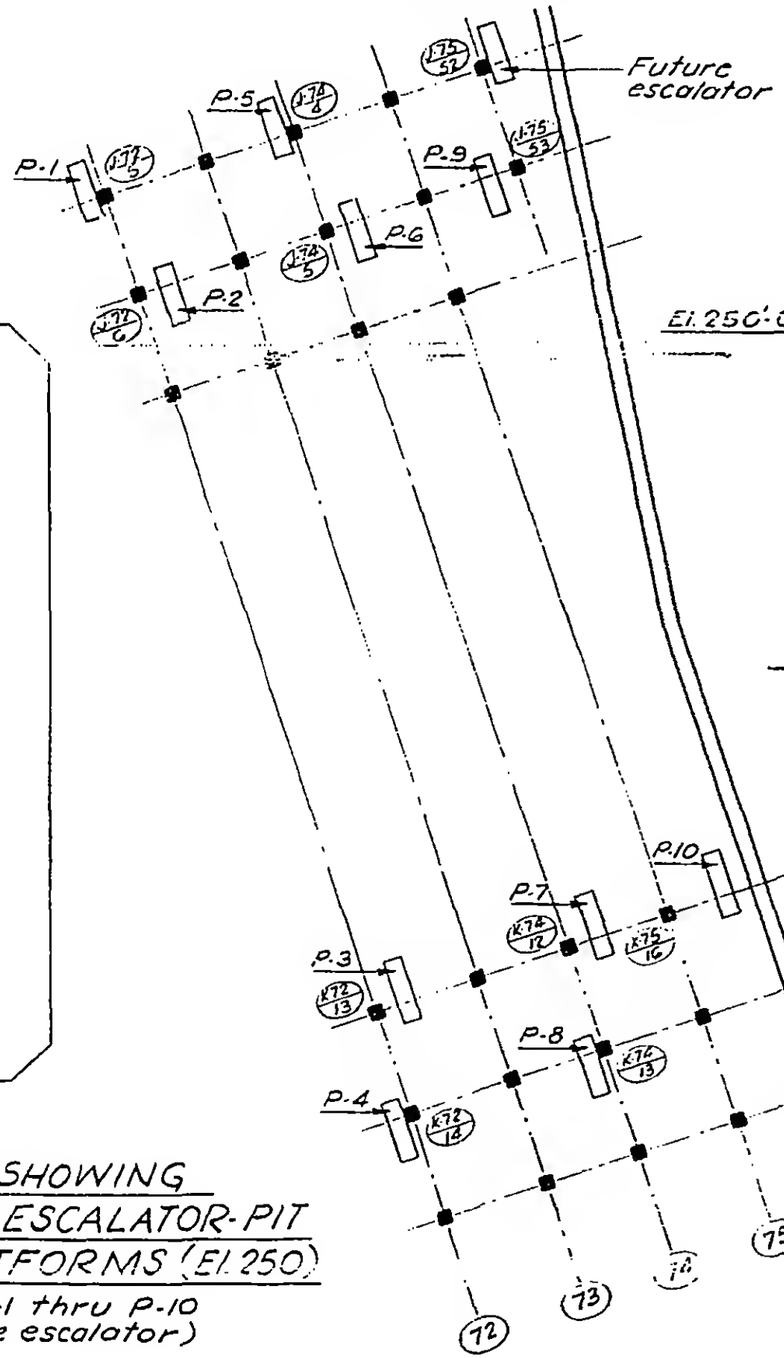
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12-JK3-13

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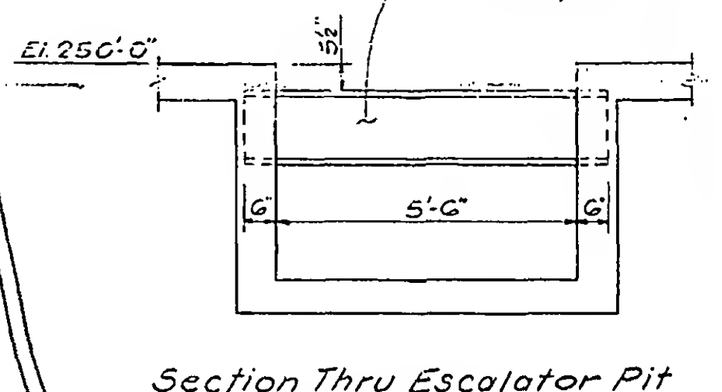
PROJECT: THE WORLD TRADE CENTER | TITLE: ESCALATOR SUPPORTING BEAMS AT PATH PLATFORMS (El 250) | DATE: 12-16-69

REVISIONS



TOWER A

KEY PLAN SHOWING
LOCATION OF ESCALATOR-PIT
AT PATH PLATFORMS (El. 250)
(Escalators P-1 thru P-10
and one future escalator)



Section Thru Escalator Pit
(no scale)

NOTE:
See concrete dwgs SCJ-29 and SCK-33 for location of escalator pits & beams.

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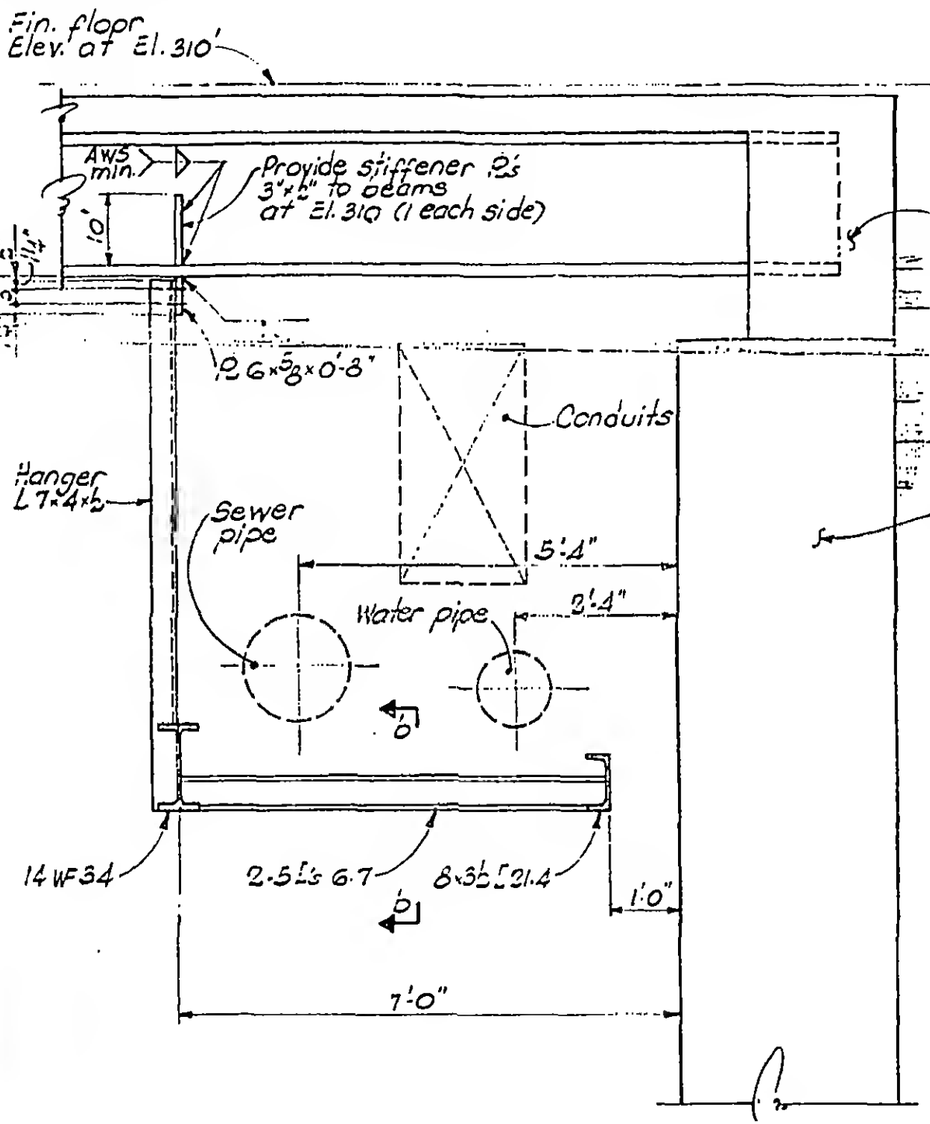
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12-JK3-30

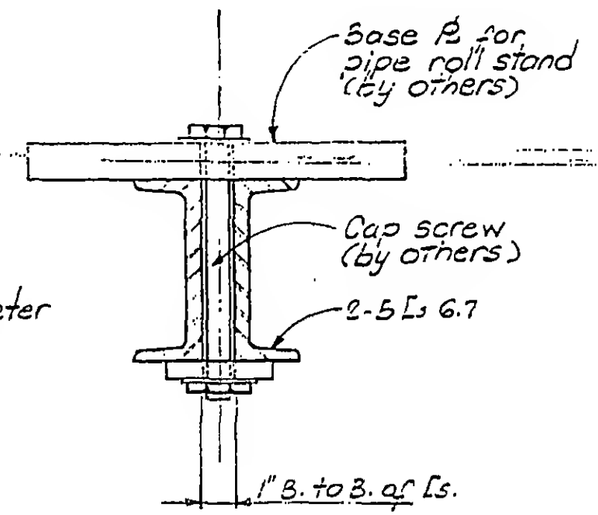
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PROJECT: THE WORLD TRADE CENTER | TITLE: UTILITY SUPPORTS ALONG EAST PERIMETER WALL | DATE: 12-17-68

REVISIONS



Section a-a
(½" = 1'-0")



Section b-b
(3" = 1'-0")

NOTES:
1. All steel to be A-36.
2. See plan for elevation of beams.

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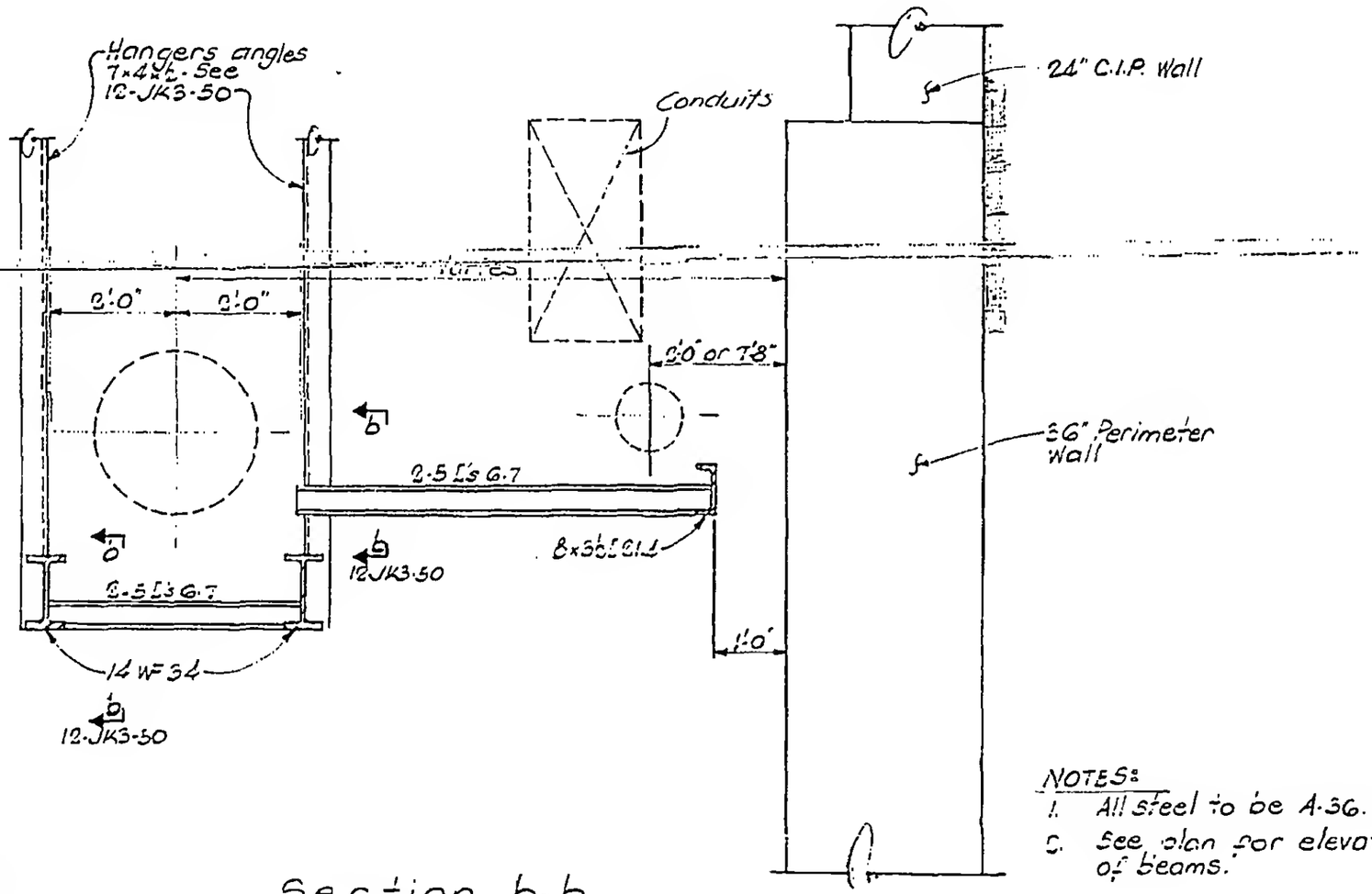
REVIEWED

12-JK3-50

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PROJECT: THE WORLD TRADE CENTER | TITLE: UTILITY SUPPORTS ALONG EAST PERIMETER WALL | DATE: 12-17-68

REVISIONS



Section b-b
(½" = 1'-0")

NOTES:
1. All steel to be A-36.
2. See plan for elevation of beams.

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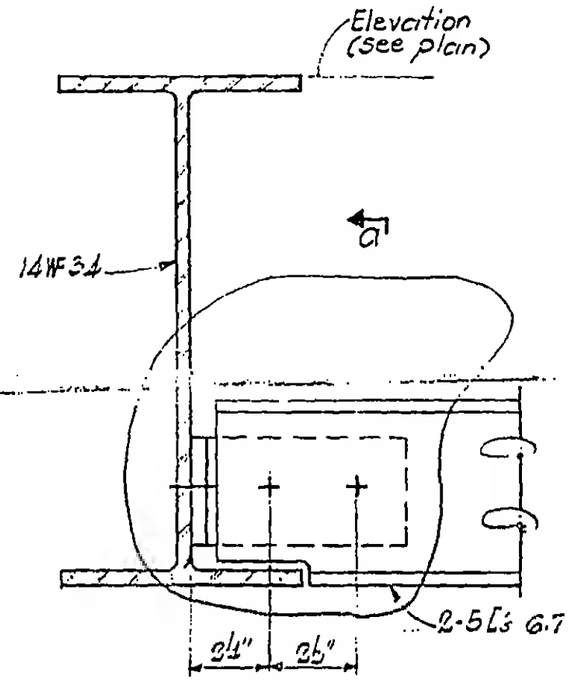
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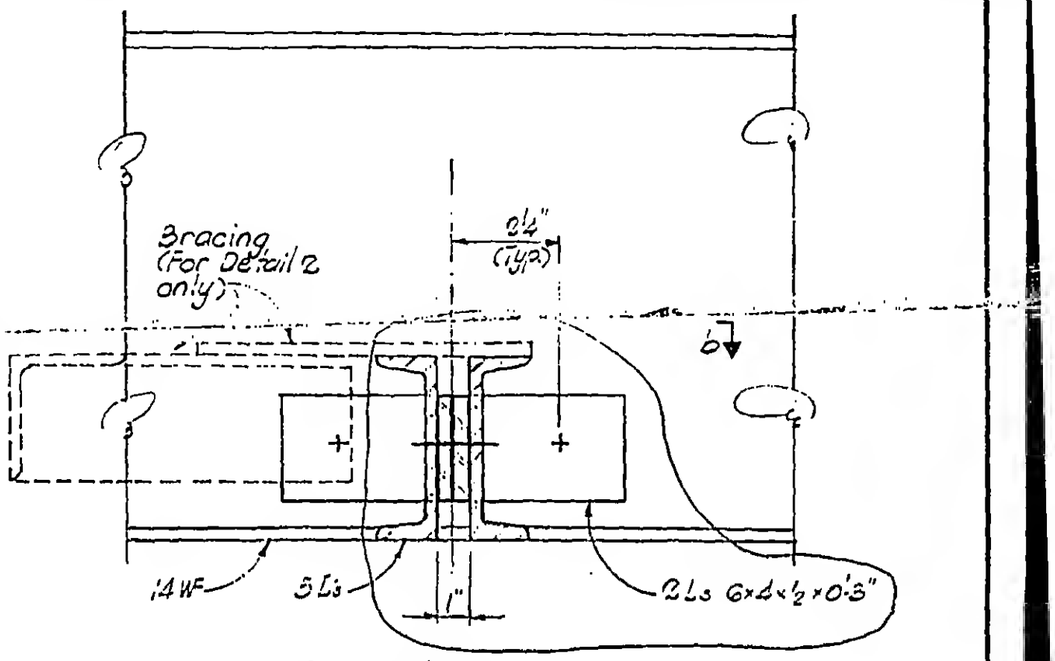
PROJECT THE WORLD TRADE CENTER | TITLE UTILITY SUPPORTS ALONG EAST PERIMETER WALL | DATE 12-17-68

REVISIONS

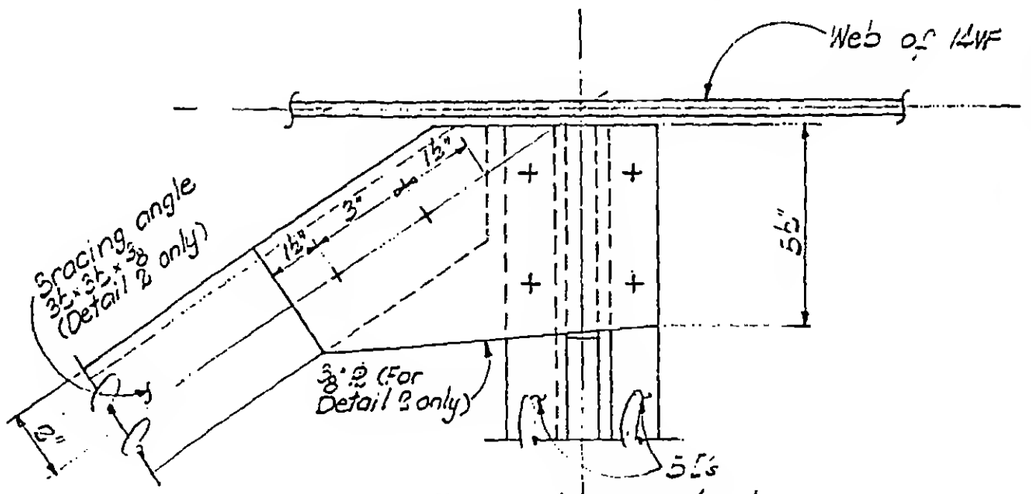
4-18-69



DETAIL – 1
DETAIL – 2



Section a-a



Section b-b

NOTES:

1. All bolts shown are ¾" ø H.S. A-325 friction type.
2. All steel to be A-36.

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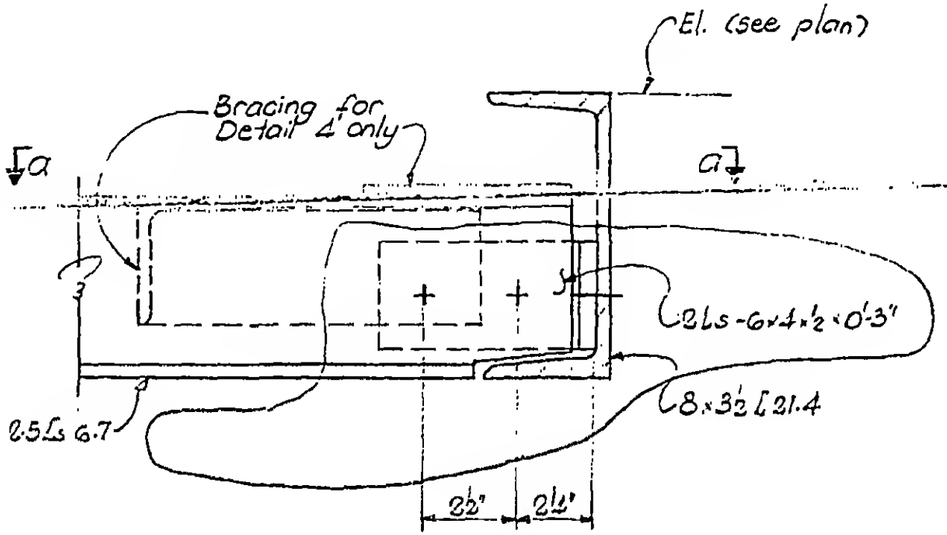
12-JK3-52

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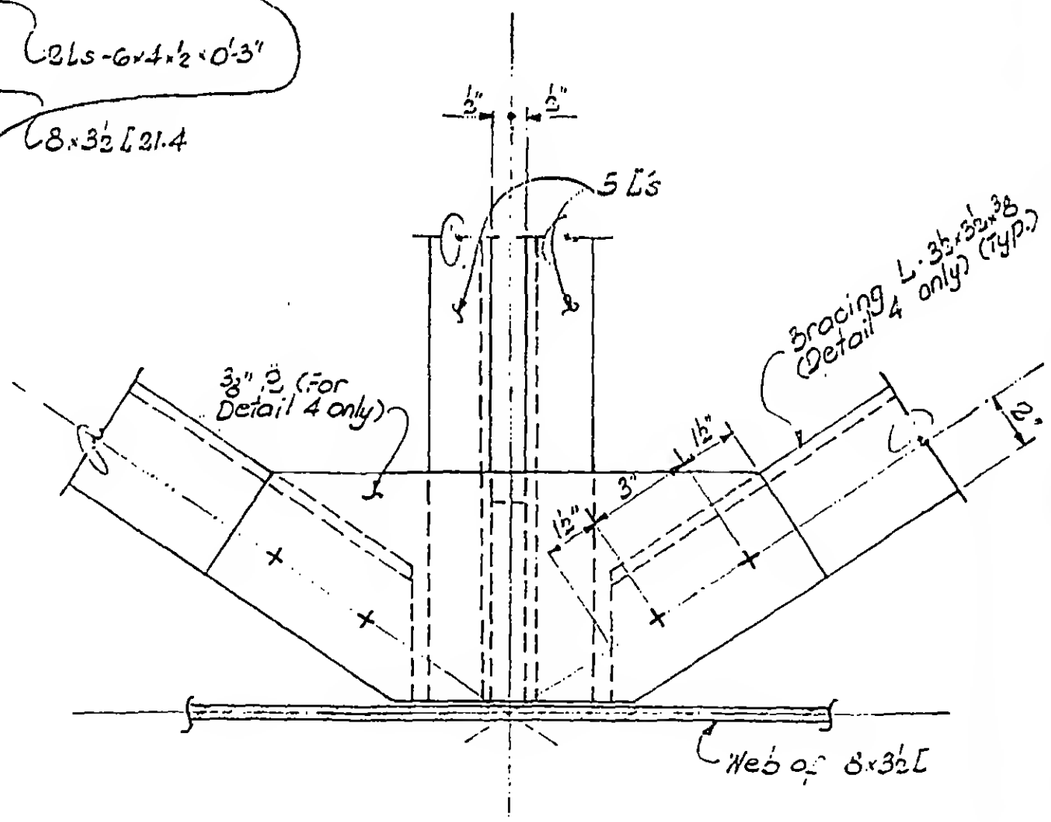
PROJECT: THE WORLD TRADE CENTER | TITLE: UTILITY SUPPORTS ALONG EAST PERIMETER WALL | DATE: 12-17-68

REVISIONS

4-18-69



Detail 3
Detail 4



Section a-a

NOTES:

1. All bolts shown are ⅞" ø H.S. A-325 friction type.
2. All steel to be A-36.

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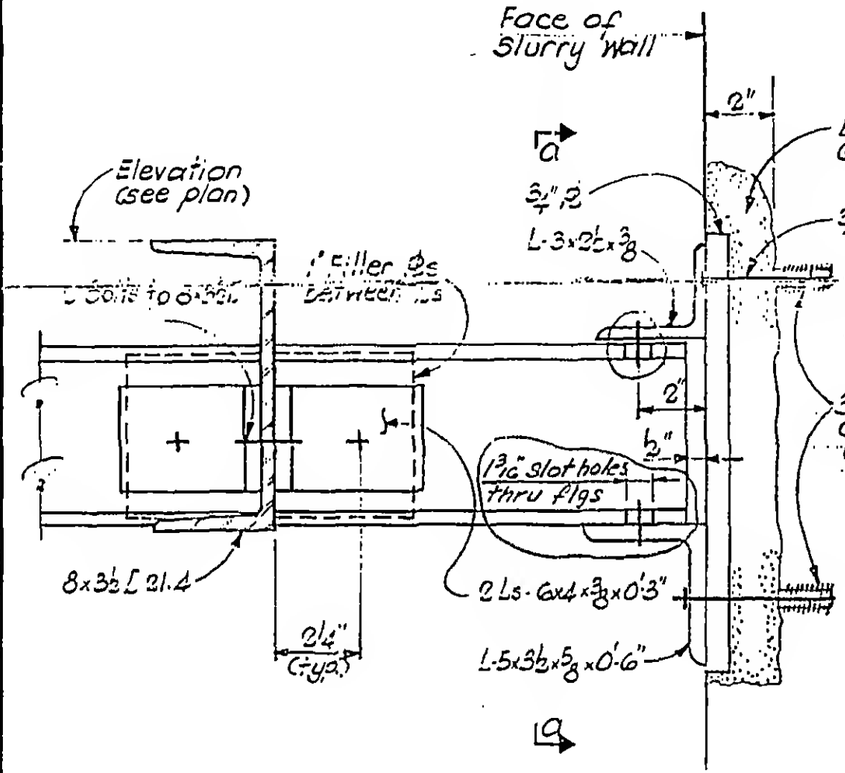
12-JK3-53

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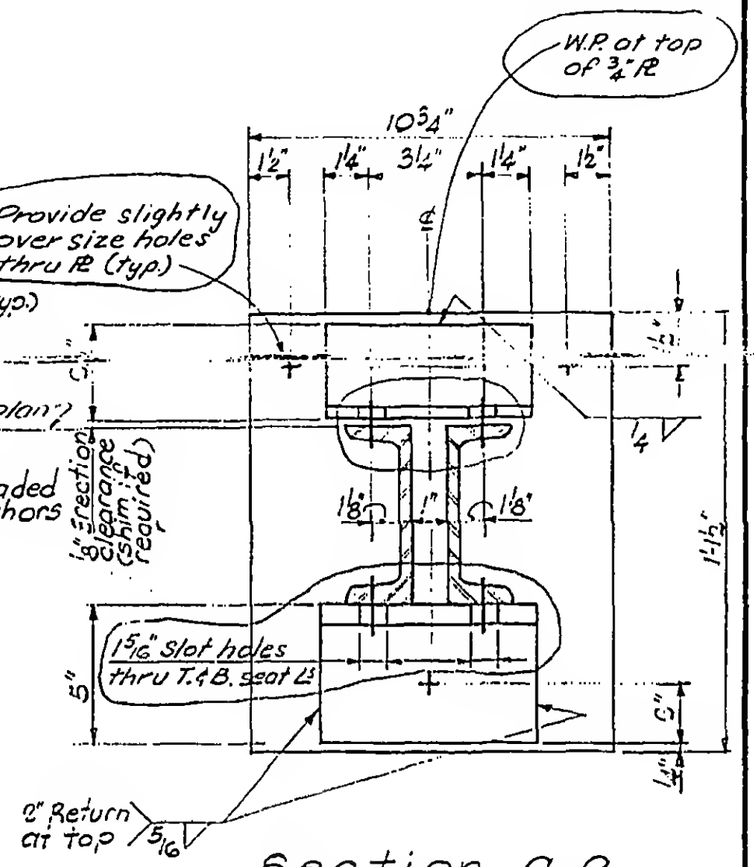
PROJECT: THE WORLD TRADE CENTER | TITLE: UTILITY SUPPORTS ALONG EAST PERIMETER WALL | DATE: 12-17-68

REVISIONS

5-29-69



DETAIL 5



Section a-a

NOTES:

1. All bolts shown are 3/4" ø H.S. A-325 friction type.
2. All steel to be A-36.
3. All welds shown to be E70XX.
4. See "Notes to Fabricator" on plan.

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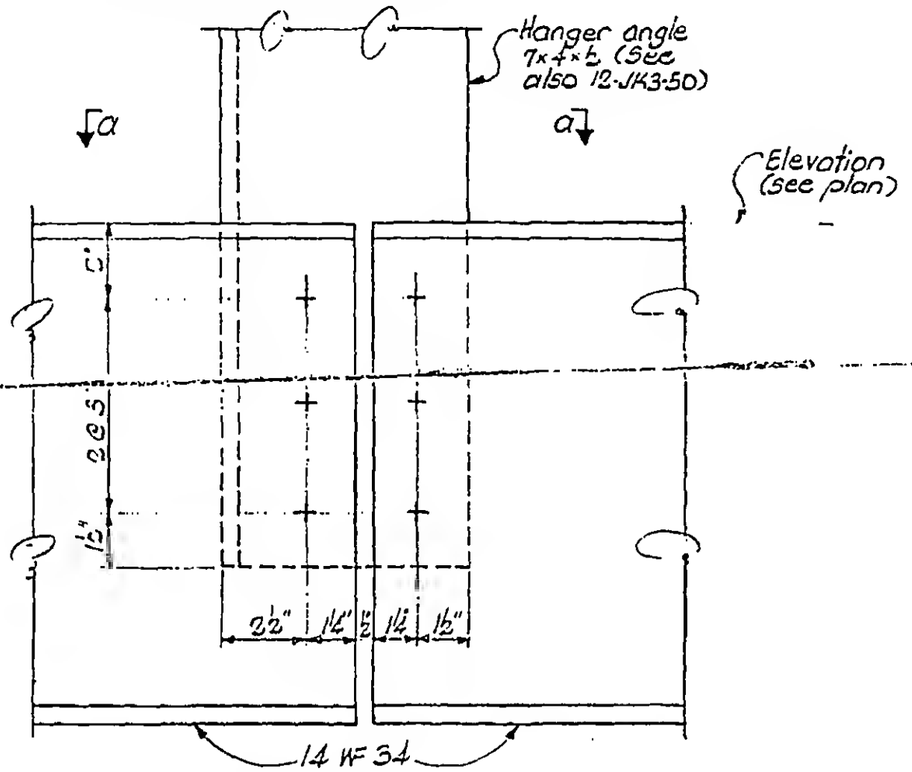
REVIEWED: E.L.

12-JK3-54

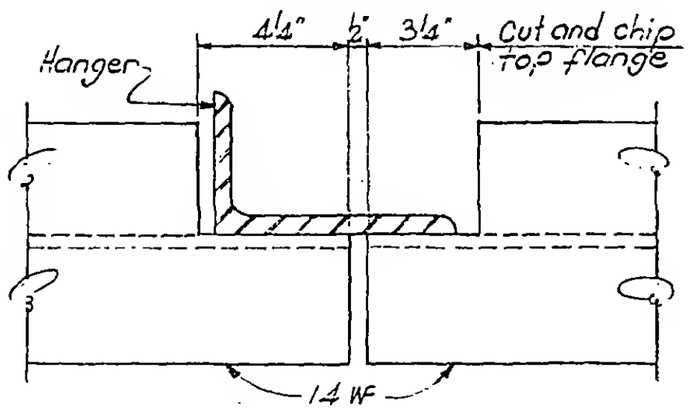
SKILLING, HELLE, CHRISTIANSEN, ROBERTSON — Structural & Civil Engineers

PROJECT: THE WORLD TRADE CENTER | TITLE: UTILITY SUPPORTS ALONG EAST PERIMETER WALL | DATE: 12-17-68

REVISIONS



DETAIL 6



Section a-a

NOTES:
1. All bolts shown are ¾"ϕ H.S. A-325 friction type.
2. All steel to be A-36.

12-JK3-55

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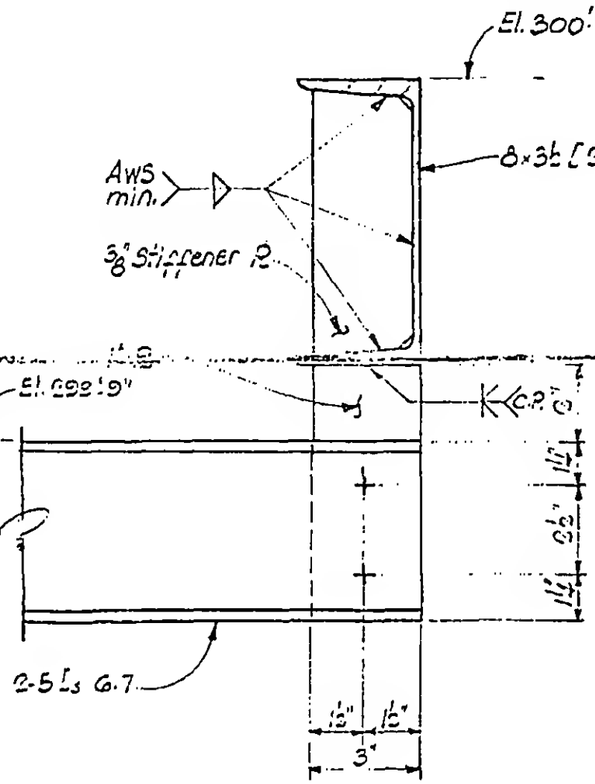
DRAWN

REVIEWED

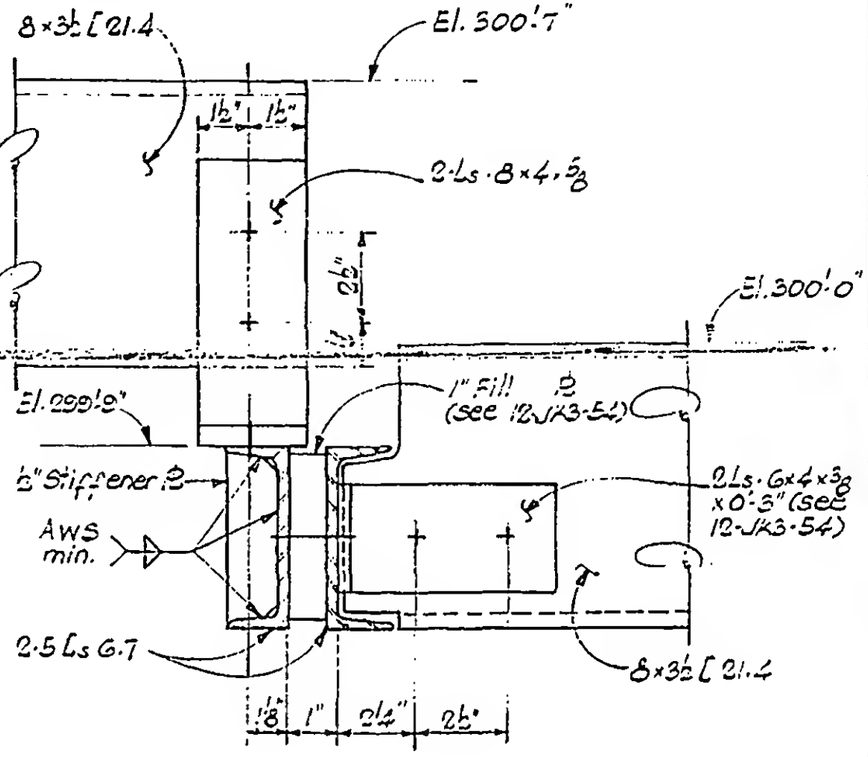
SKILLING, HELLE, CHRISTIANSEN, ROBERTSON — Structural & Civil Engineers

PROJECT: THE WORLD TRADE CENTER | TITLE: UTILITY SUPPORTS ALONG EAST PERIMETER WALL | DATE: 12-17-68

REVISIONS



DETAIL 7



DETAIL 8

NOTES:

1. All bolts shown are ¾"ø H.S. A-325 friction type.
2. All steel to be A-36.

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DESIGNED

DRAWN

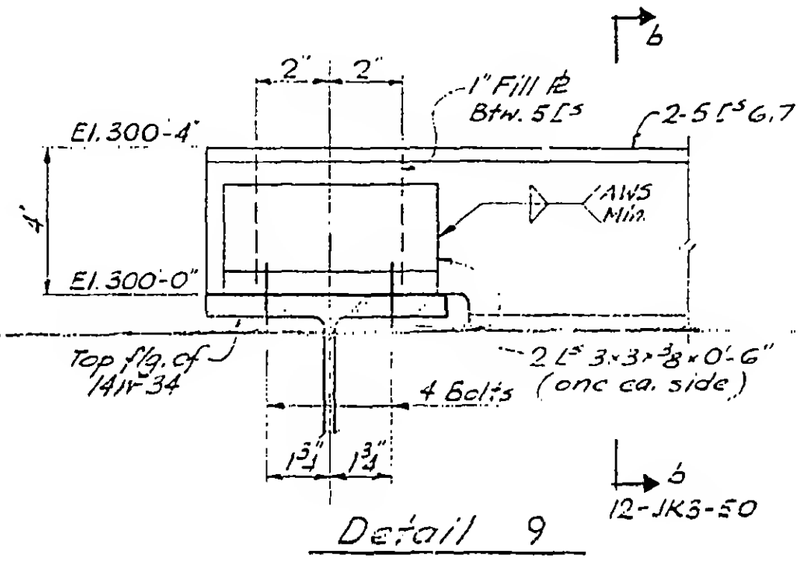
REVIEWED

12-JK3-56

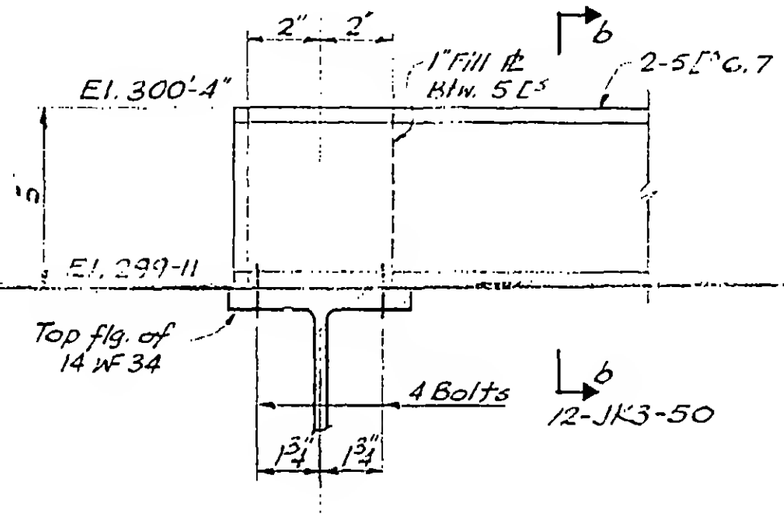
SKILLING, HELLE, CHRISTIANSEN, ROBERTSON — Structural & Civil Engineers

PROJECT: THE WORLD TRADE CENTER | TITLE: UTILITY SUPPORTS ALONG EAST PERIMETER WALL | DATE: 12-17-68

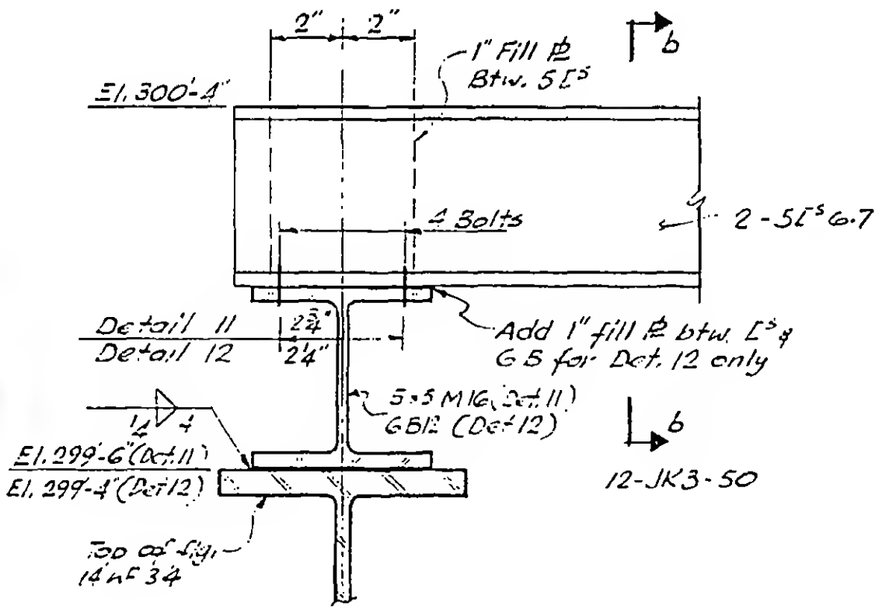
REVISIONS



Detail 9



Detail 10



Detail 11

Detail 12

Notes:

1. All bolts shown are 3/4" Φ H.S. A 325 Friction type
2. All steel to be A-36
3. All welds to be E70XX

12-JK3-57

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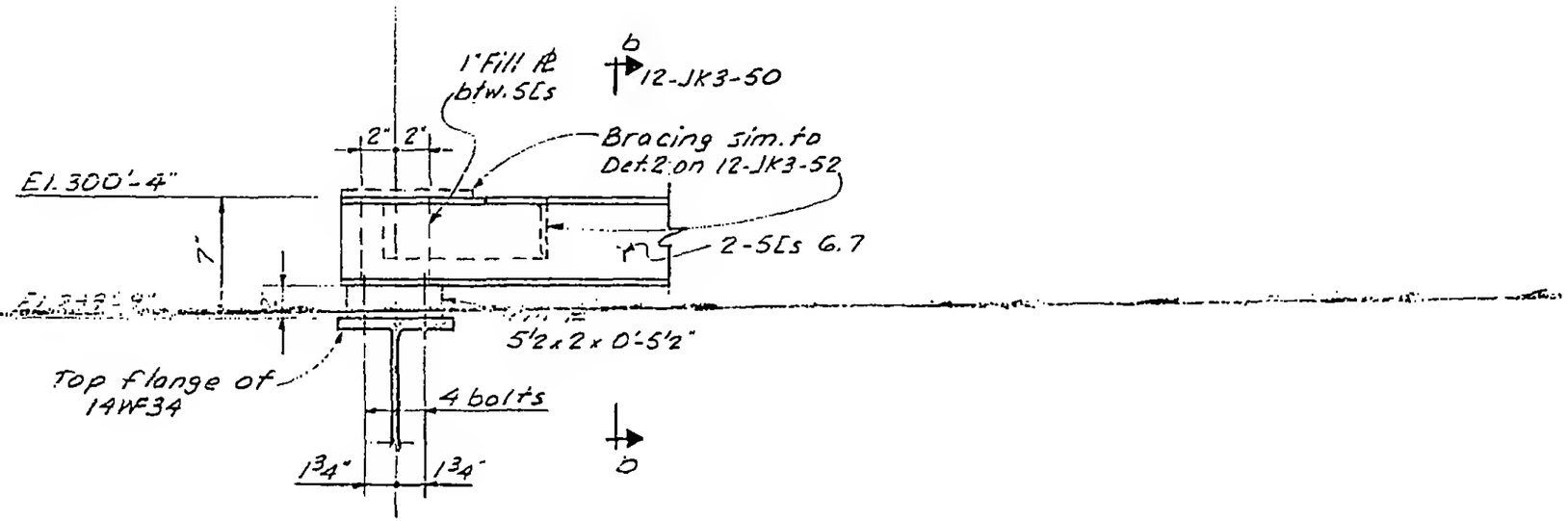
DRAWN

REVIEWED

SKILLING, HELLE, CHRISTIANSEN, ROBERTSON — Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE UTILITY SUPPORTS ALONG EAST PERIMETER WALL | DATE 12-17-68

REVISIONS



DETAIL – 13

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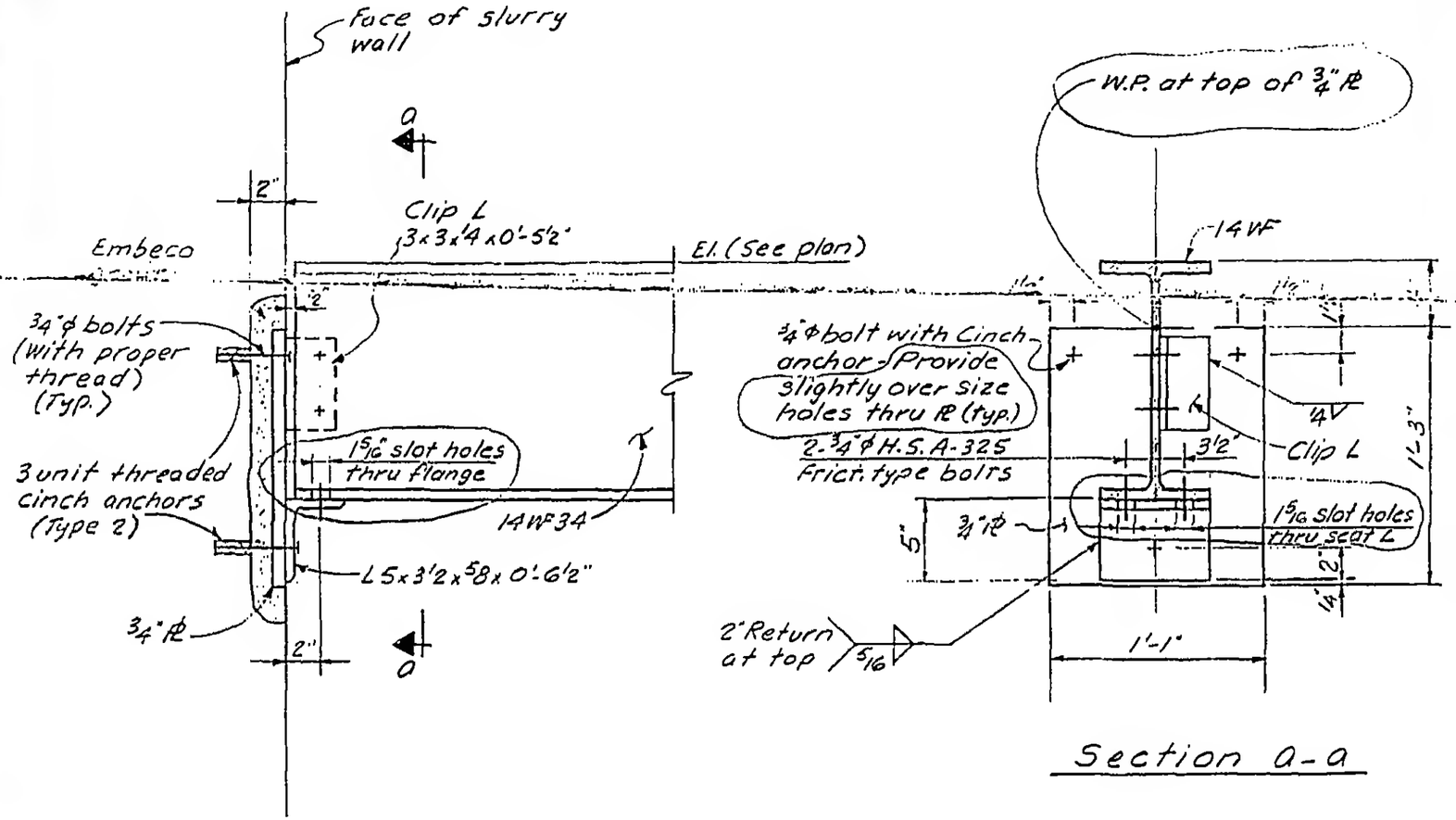
12-JK3-58

SKILLING, HELLE, CHRISTIANSEN, ROBERTSON — Structural & Civil Engineers

PROJECT: THE WORLD TRADE CENTER | TITLE: UTILITY SUPPORT ALONG EAST SLURRY WALL | DATE: 12-17-68

REVISIONS

5-29-69



Section a-a

DETAIL - 14

Notes:

1. All welds to be E70xx.
2. All steel to be A-36.

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DRAWN: S.C.

REVIEWED: E.L.

12-JK3-59

SKILLING, HELLE, CHRISTIANSEN, ROBERTSON — Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE MOMENT CONNECTION SCHEDULE AT EL.332' | DATE 1-13-69

REVISIONS

9-16-69

GIRDER TO COLUMN FLANGE

Connection Detail No. & Type		Bolts "A"		Bolts "B"		Plates (in.) #1	Plates (in.) #2			Weld (in.) #1				Remark
No.	Type	Total No. of Bolts	Diam.(in.)	Total No. of Bolts	Diam.(in.)	t_1	t_2							
1	(I-A)	8	1⅛	18	1⅛	½*	1			⅜				
2	(I-A)	8	1⅛	16	1⅛	½*	⅞			⅜				
3	(I-A)	8	1⅛	14	1⅛	½*	¾			⅜				
4	(I-A)	7	1	14	1⅛	⅜*	¾			⅜				
5	(I-A)	8	1⅛	12	1⅛	½*	⅝			⅜				
6	(I-A)	7	1	12	1⅛	⅜*	⅝			⅜				
7	(I-A)	6	1	12	1	⅜*	½			⅜				
8	(I-A)	6	1	10	1	⅜*	7/16			⅜				
9	(I-A)	8	1⅛	20	1⅛	½*	1			⅜				

Notes:
1. See Dwg. 12-JK4-4 for explanation of schedule.

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REGISTERED OF THE STATE OF NEW YORK

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REVIEWED R.T. & E.L.

12-JK4-2

SKILLING. HELLE. CHRISTIANSEN. ROBERTSON — Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE MOMENT CONNECTION SCHEDULE AT EL.332' | DATE 1-13-69

REVISIONS

9-16-69

GIRDER TO COLUMN WEB

Connection Detail No. & Type		Bolts "A"		Bolts "B"		Plates #1	Plates #2		Weld #1	Weld #2		Remark
No.	Type	Total No. of Bolts	Diam.	Total No. of Bolts	Diam.	t_1	t_2					
1	(II-A)	7	1	12	1 1/8	1/2*	3/4		3/8	3/8		
2	(II-A)	6	1	12	1	3/8*	5/8		5/16	5/16		
3	(II-A)	6	1	10	1	3/8*	1/2		5/16	5/16		
4	(II-A)	8	1	10	1	3/8*	1/2		5/16	5/16		

Notes:

1. See Dwg. 12-JK4-4 for explanation of schedule.

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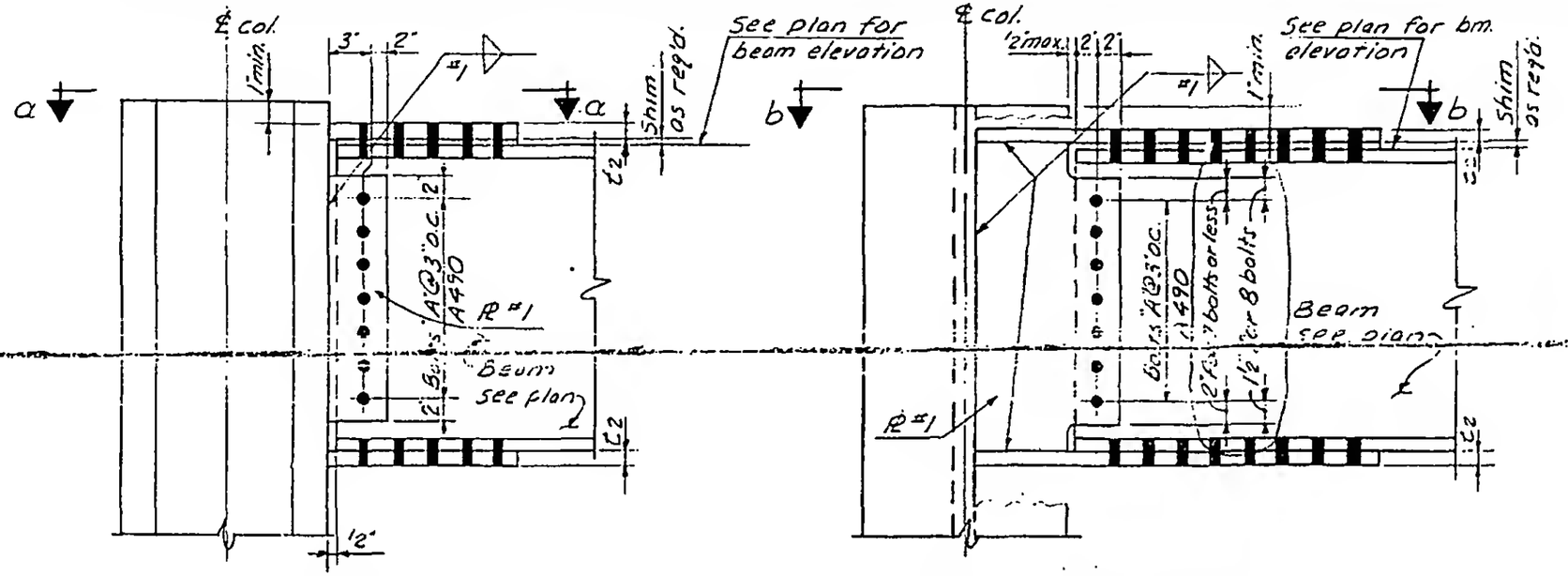
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12-JK4-3

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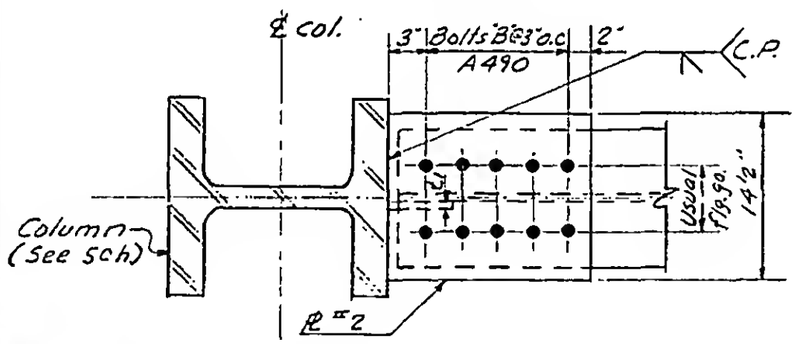
PROJECT: THE WORLD TRADE CENTER | TITLE: GIRDER TO COL. FLANGE & WEB MOMENT CONN. DETAIL | DATE: 1-13-69

REVISIONS
9-16-69

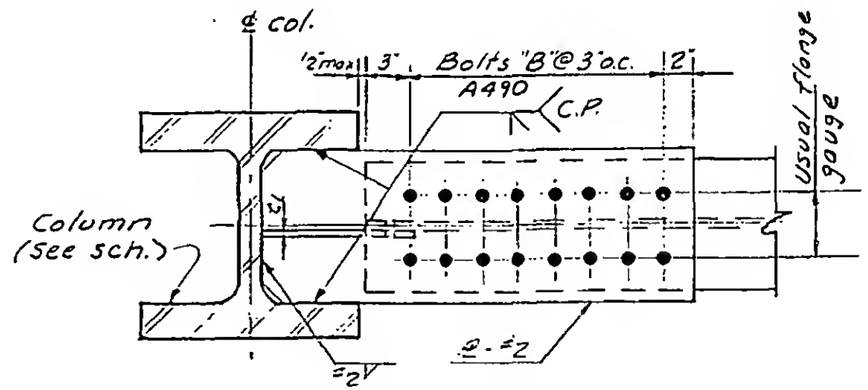


TYPE (I-A) ELEVATION

TYPE (II-A) ELEVATION



Section a-a
(Typ. Top & Bottom Flange)



Section b-b
(Typ. Top & Bottom Flange)

Notes:

1. All Rs to be Fy = 50 ksi except as noted.
   * —— Fy = 36 ksi
   ** —— Fy = 42 ksi
2. All bolts shown to be H.S. Friction Type.
3. All welds to be E70XX
4. Type I-B & II-B —— 2 rows of group 'A' bolts.
   Type I-C & II-C —— 4 rows of group 'B' bolts.
   Type I-D & II-D —— 2 rows of group 'A' bolts & 4 rows of group 'B' bolts.
5. See schedules 12-JK4-2 & 12-JK4-3 for bolts, plates & weld.

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DRAWN: S.C.

REVIEWED: R.T. & E.L.

12-JK4-4

SKILLING, HELLE, CHRISTIANSEN, ROBERTSON — Structural & Civil Engineers

PROJECT: THE WORLD TRADE CENTER | TITLE: BEAM CONNECTION DETAIL TO TOWER (EL. 332') | DATE: 1-13-69

REVISIONS
10-14-69
10-23-69
12-8-69
4-7-72

Detail No.	Existing Seat at Tower Columns: Seat Type Conn.	B	Elev. at Top of Seat	Beam Detail: A	C
A-1	G	6½"	328'-3⅝"	1'-0"	1½"
A-2	H	8"	328'-9⅛"	0'-9"	1½"
A-3	G	5½"	329'-0¼"	—	1½"
A-4	H	8"	329'-3"	0'-9"	1½"
A-5	G	6"	329'-3"	0'-9"	1½"
A-6	G-1	5"	328'-2½"	—	1½"
A-7	G-1	5"	324'-1"	—	1½"
A-8	G-1	5"	322'-8½"	—	1½"
A-9	G-1	5"	318'-7"	—	1½"
A-10	G-1	5"	317'-2½"	—	1½"
A-11	G-1	5"	313'-1"	—	1½"
A-12	G-1	5"	311'-8½"	—	1½"
A-13	G	6"	329'-3"	—	1½"

NOTES:
1. See Dwg. 12-JK4-6 for explanation of schedule.

Detail No.	Existing Seat at Tower Columns: Seat Type Conn.	B	Elev. at Top of Seat	Beam Detail: A	C
B-1	G	6½"	328'-5¾"	1'-0"	1½"
B-2	H	8"	328'-5¾"	0'-9"	1½"
B-3	H	5"	329'-3⅝"	0'-9"	1½"
B-4	G-1	5½"	329'-3⅝"	0'-9"	1½"
B-5	G	5½"	329'-3⅝"	0'-9"	1½"
B-6	G-1	5"	324'-1"	0'-9"	1½"
B-7	G-1	5"	322'-8½"	0'-9"	1½"
B-8	G-1	5"	318'-7"	0'-9"	1½"
B-9	G-1	5"	317'-2½"	0'-9"	1½"
B-10	G-1	5"	313'-1"	0'-9"	1½"
B-11	G-1	5"	311'-8½"	0'-9"	1½"
* B-12	G-1	5½"	328'-2½"	0'-9"	1½"

* Remove existing seat from Tower column and field weld new seat as shown on 12-JK4-7

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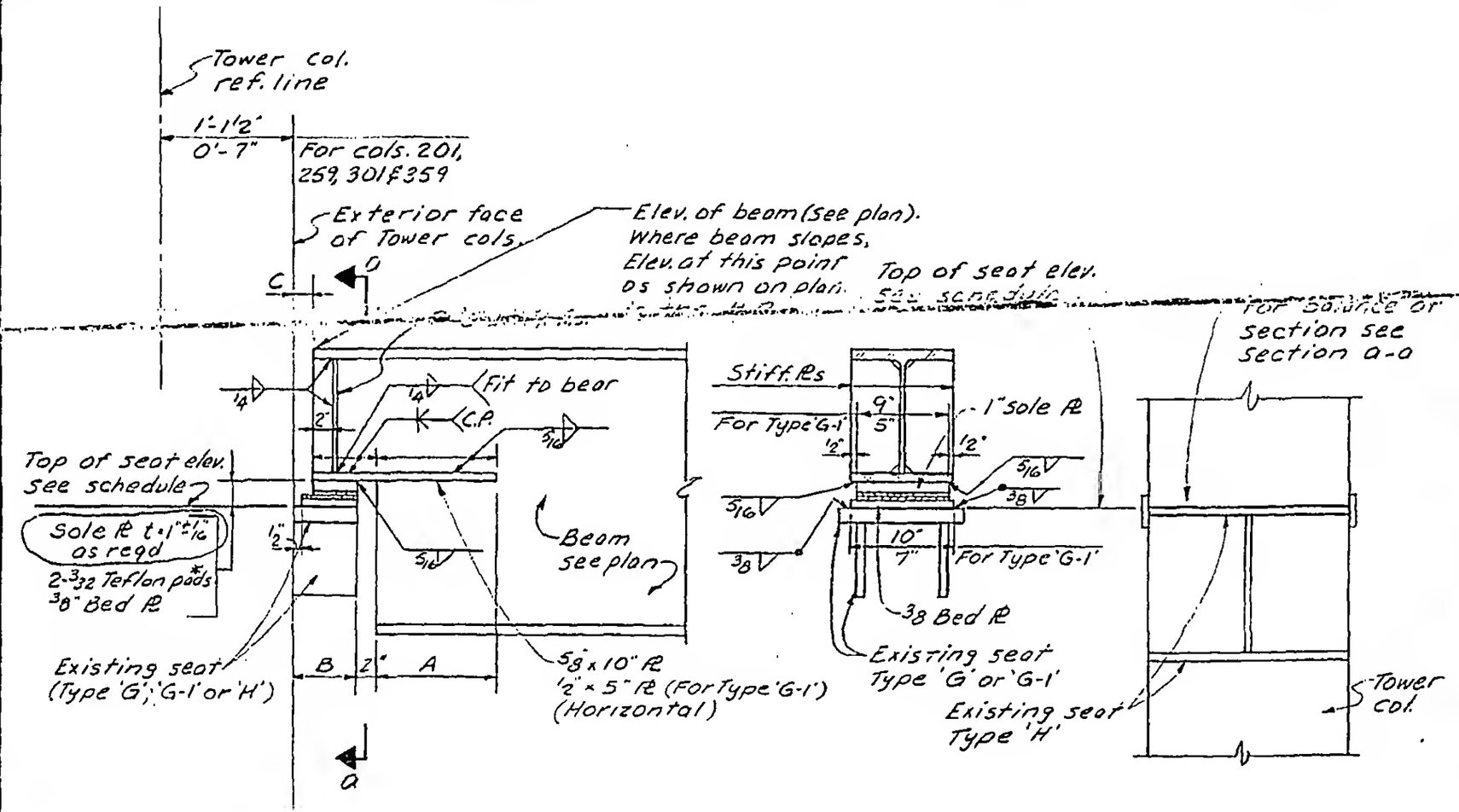
REVIEWED: R.T. & E.L.

12-JK4-5

SKILLING, HELLE, CHRISTIANSEN, ROBERTSON — Structural & Civil Engineers

PROJECT: THE WORLD TRADE CENTER | TITLE: BEAM CONNECTION DETAIL TO TOWER(EL.332') | DATE: 1-13-69

REVISIONS
10-23-69
12-8-69



Elevation — Section a-a — Section a1-a1

* Teflon pads to have a bearing capacity of 2000 psi.

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DESIGNED

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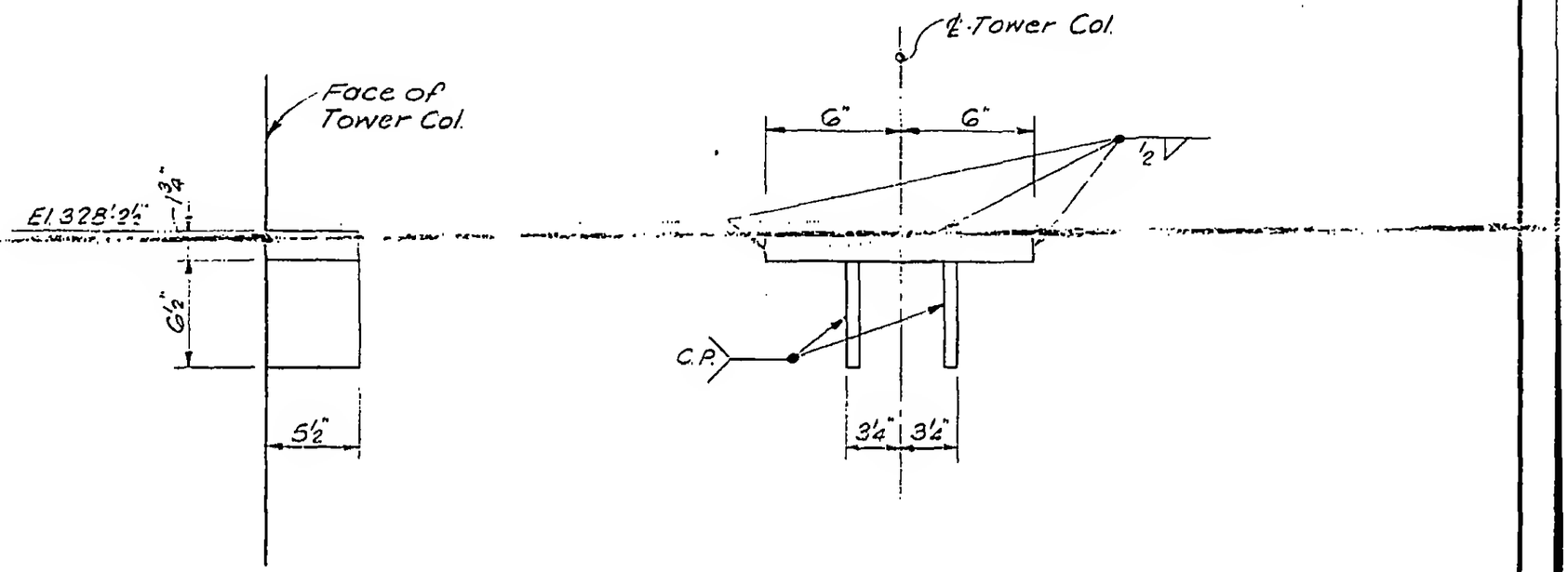
REVIEWED R.T. & E.L.

12-1K4-G

SKILLING, HELLE, CHRISTIANSEN, ROBERTSON — Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE BEAM CONNECTION DETAIL TO TOWER (EL.332') | DATE 12-8-69

REVISIONS



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UNIVERSITY OF THE STATE OF NEW YORK

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E.L.

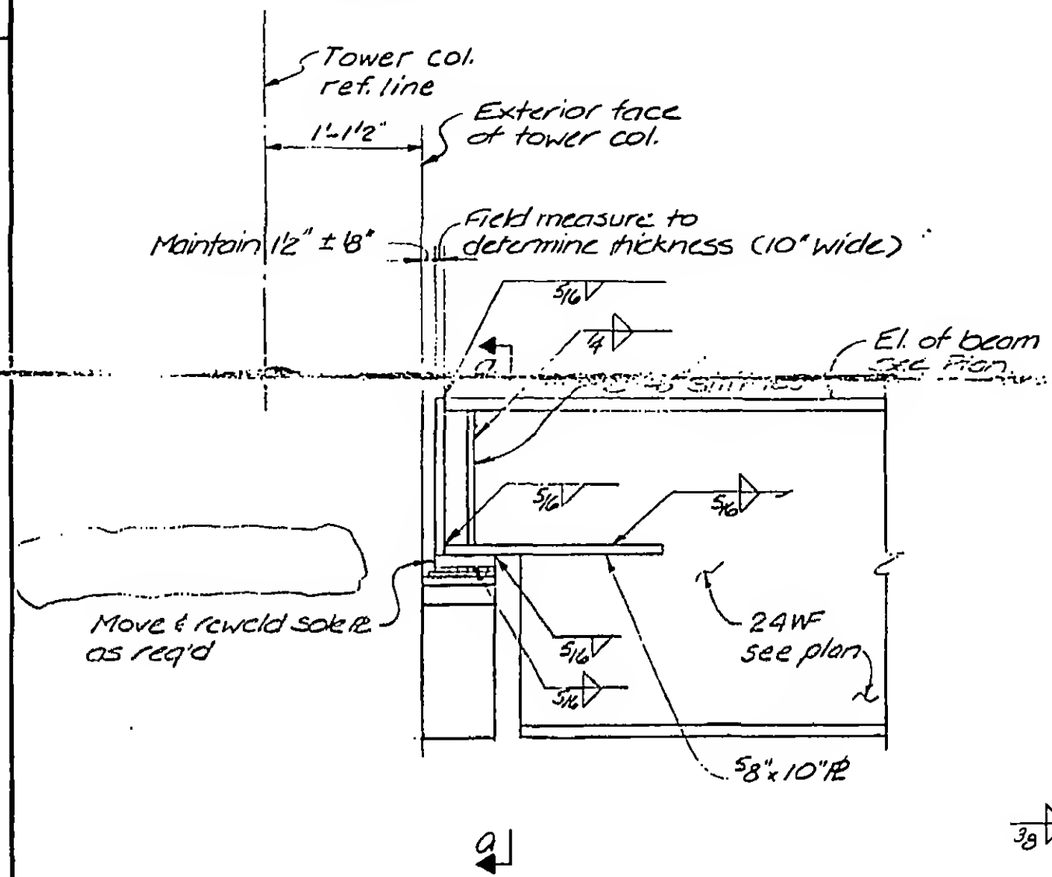
12-JK4-7

SKILLING, HELLE, CHRISTIANSEN, ROBERTSON — Structural & Civil Engineers

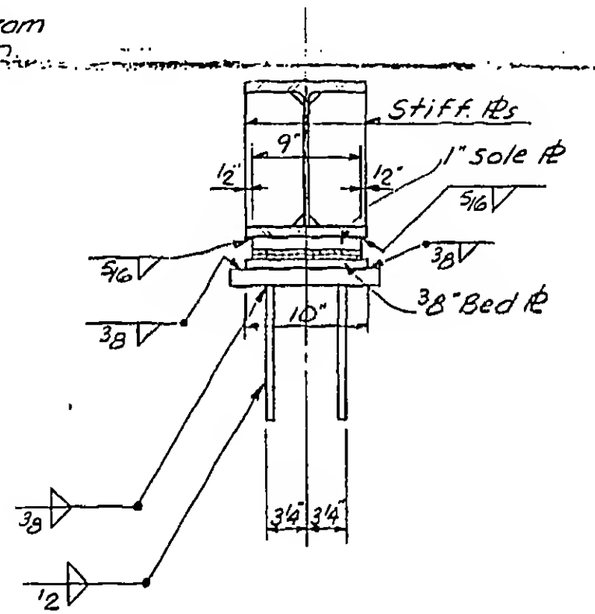
PROJECT: THE WORLD TRADE CENTER | TITLE: BEAM CONNECTION DETAIL TO TOWER-EL.332' | DATE: 4-7-72

REVISIONS

7/19/72



Elevation



Section a-a

* Teflon pads to have a bearing capacity of 2000 psi.

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DRAWN A. Franqui

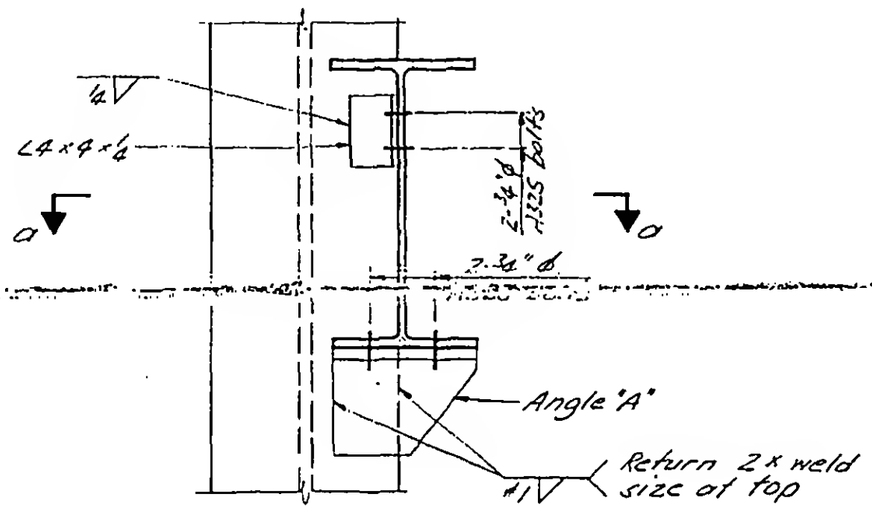
REVIEWED

12-JK4-8

SKILLING, HELLE, CHRISTIANSEN, ROBERTSON — Structural & Civil Engineers

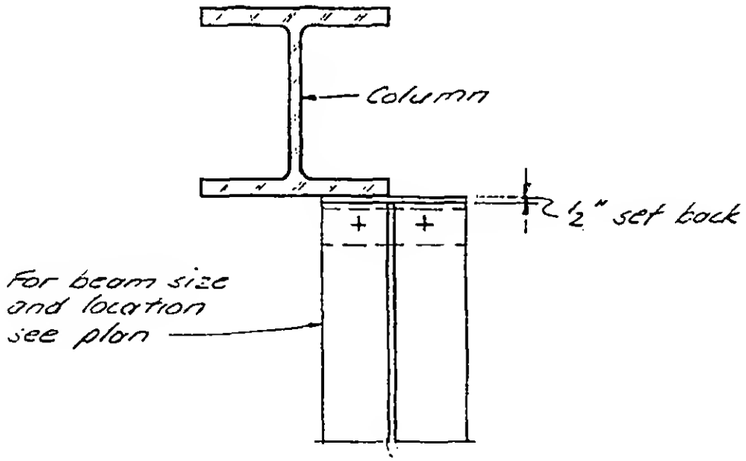
PROJECT: THE WORLD TRADE CENTER | TITLE: BEAM TO COLUMN CONNECTION | DATE: 1-13-69

REVISIONS



Elevation

Det. No.	Angle "A" (Fy36)	Weld #1 E70XX
1	9x4x1	5/8



Section

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STATE OF NEW YORK

DESIGNED

DRAWN: J Adams

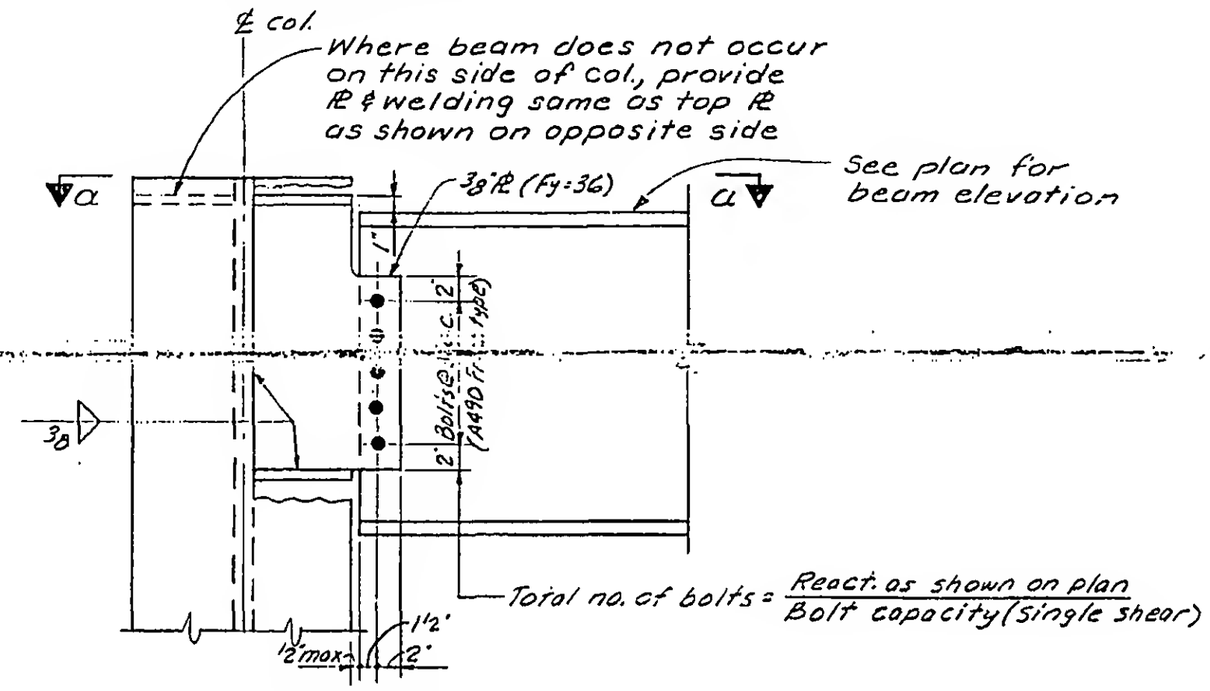
REVIEWED: R.T. & E.L.

12-JK4-9

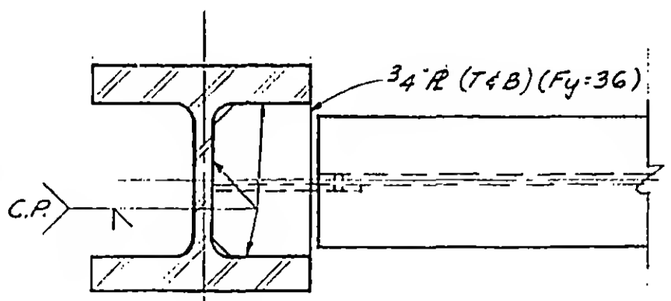
SKILLING, HELLE, CHRISTIANSEN, ROBERTSON — Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE BEAM TO COLUMN WEB CONNECTION | DATE 1-13-69

REVISIONS



ELEVATION



Section a-a

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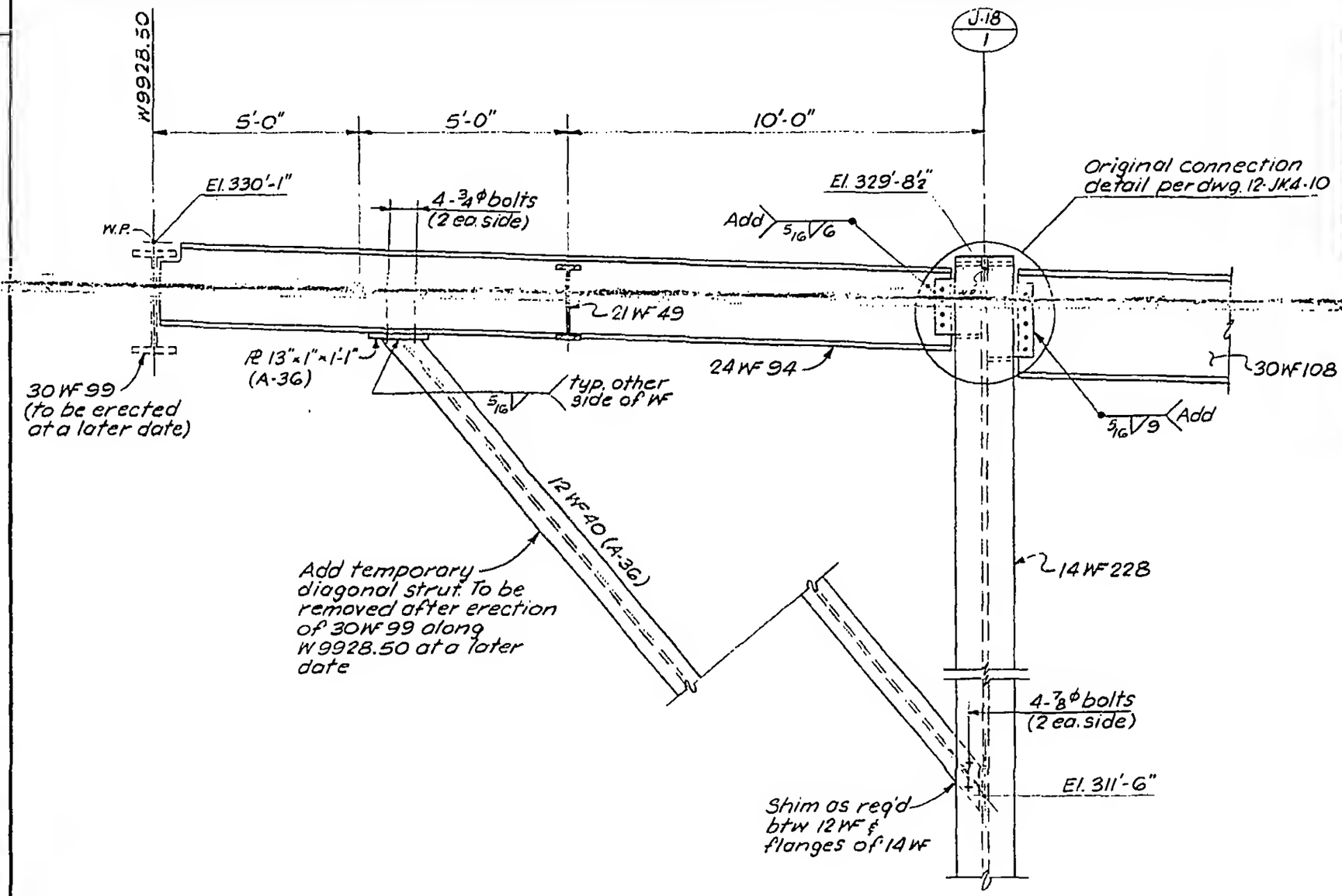
REVIEWED R.T. & E.L.

12-JK4-10

SKILLING, HELLE, CHRISTIANSEN, ROBERTSON — Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER | TITLE DETAIL OF TEMPORARY STRUT (EL.332') | DATE 4-8-70

REVISIONS



Notes:

1. All welds to be E70xx
2. All bolts to be A-325 HS. friction type.

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DRAWN
S.C.

REVIEWED
E.L.

12-JK4·14

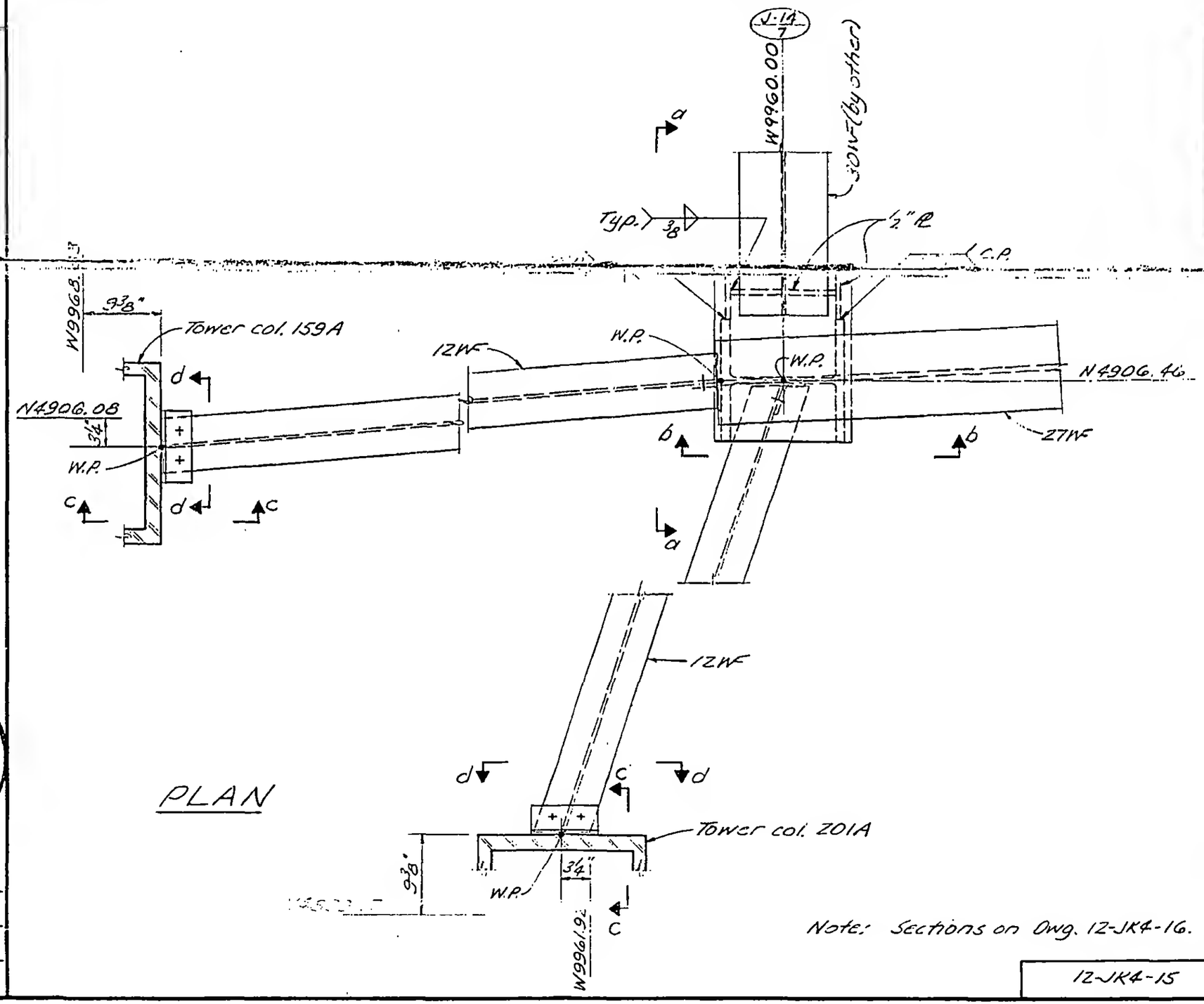
SKILLING, HELLE, CHRISTIANSEN, ROBERTSON — Structural & Civil Engineers

PROJECT: THE WORLD TRADE CENTER

TITLE: CONNECTION DETAIL FOR COL. J-14/7 (EL. 332'-0")

DATE: 1-13-69

REVISIONS



PLAN

Note: Sections on Dwg. 12-JK4-16.

12-JK4-15

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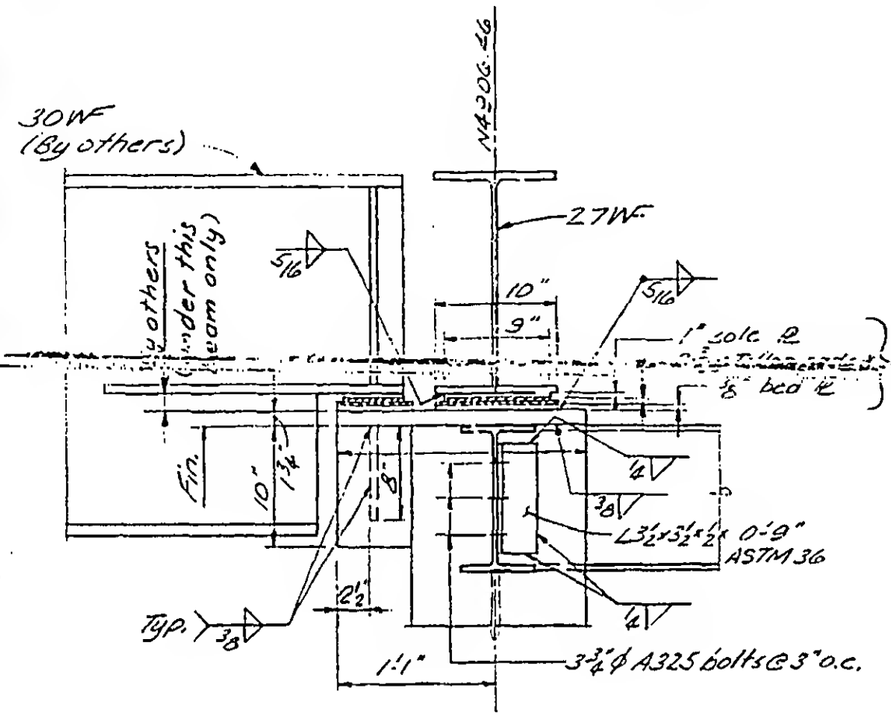
DRAWN: J. Adams

REVIEWED: R.T. & E.L.

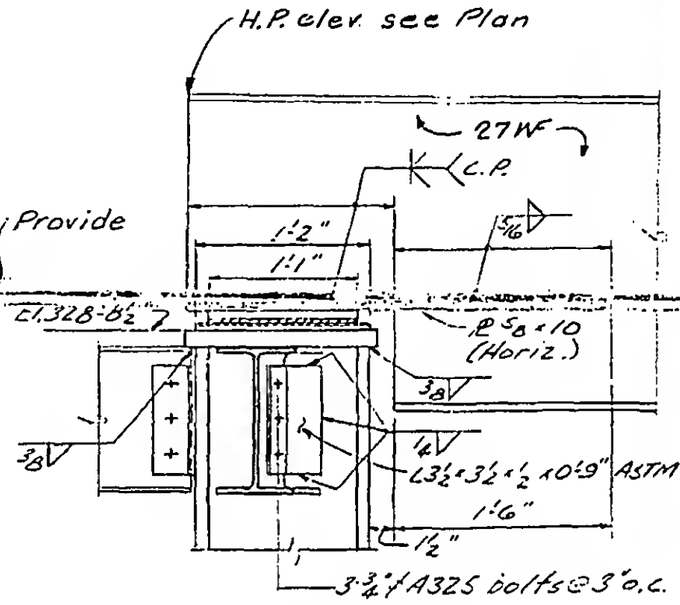
SKILLING, HELLE, CHRISTIANSEN, ROBERTSON — Structural & Civil Engineers

PROJECT: THE WORLD TRADE CENTER | TITLE: CONNECTION DETAIL FOR COLUMN 1-14/7 (EL 332'-0") | DATE: 1-13-69

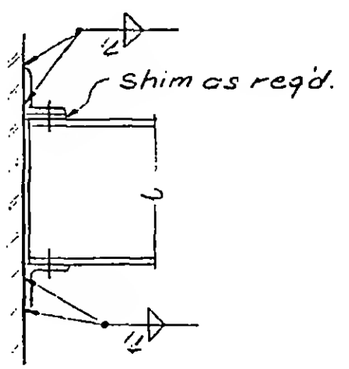
REVISIONS



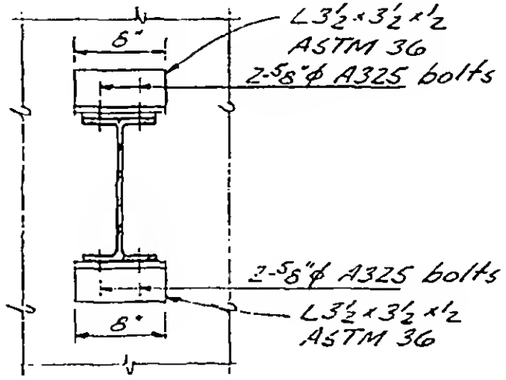
Section a-a



Section b-b



Section c-c



Section a-a

capacity of 2000 psi.

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LESLIE E. ROBERTSON
No. 36360
STATE OF NEW YORK

DRAWN
J. Adams

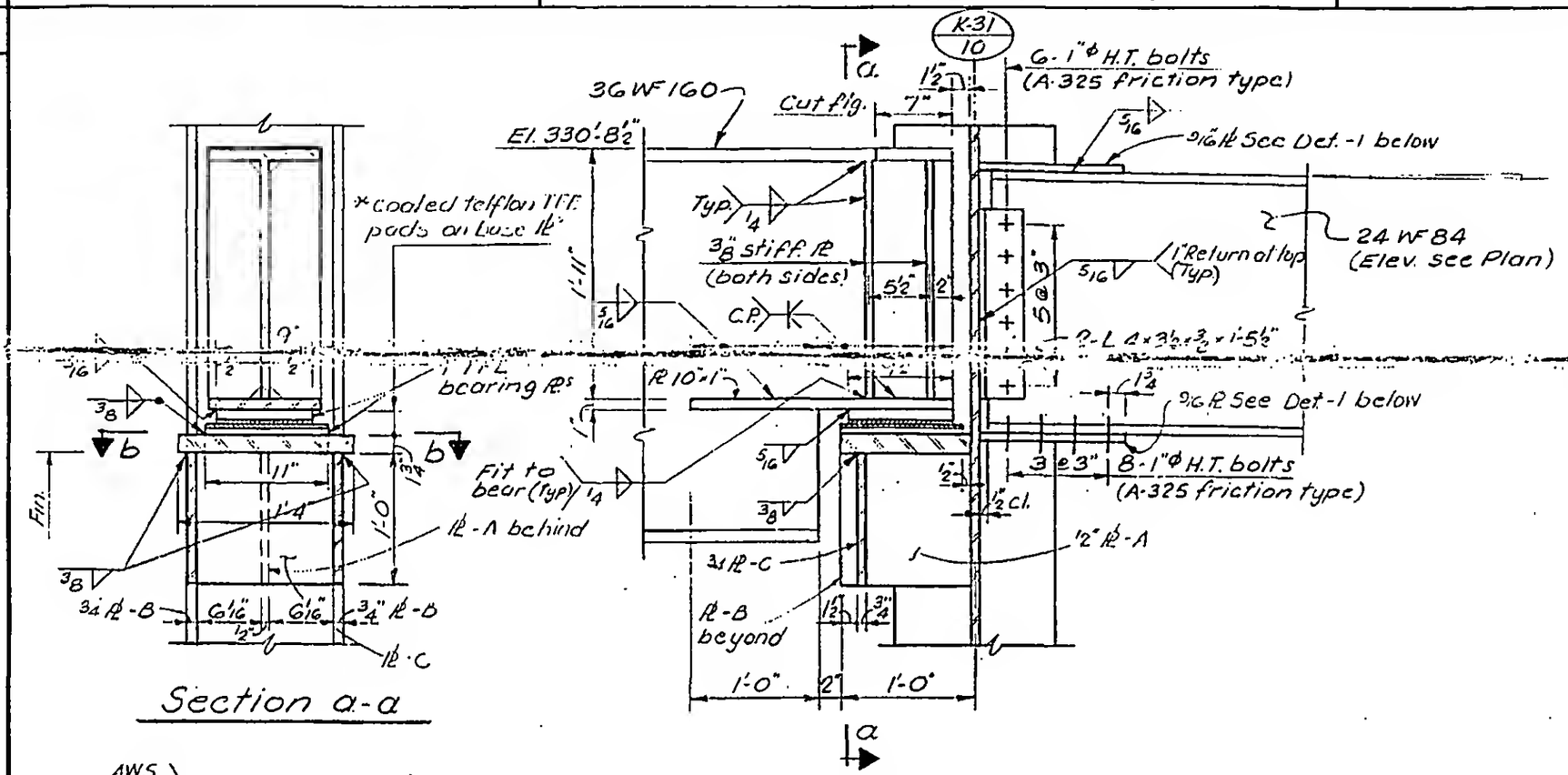
REVIEWED
P T & F.I

12-JK4-16

SKILLING, HELLE, CHRISTIANSEN, ROBERTSON — Structural & Civil Engineers

PROJECT: THE WORLD TRADE CENTER | TITLE: BEAM CONNECTION DETAILS - El. 332' | DATE: 10-23-69

REVISIONS



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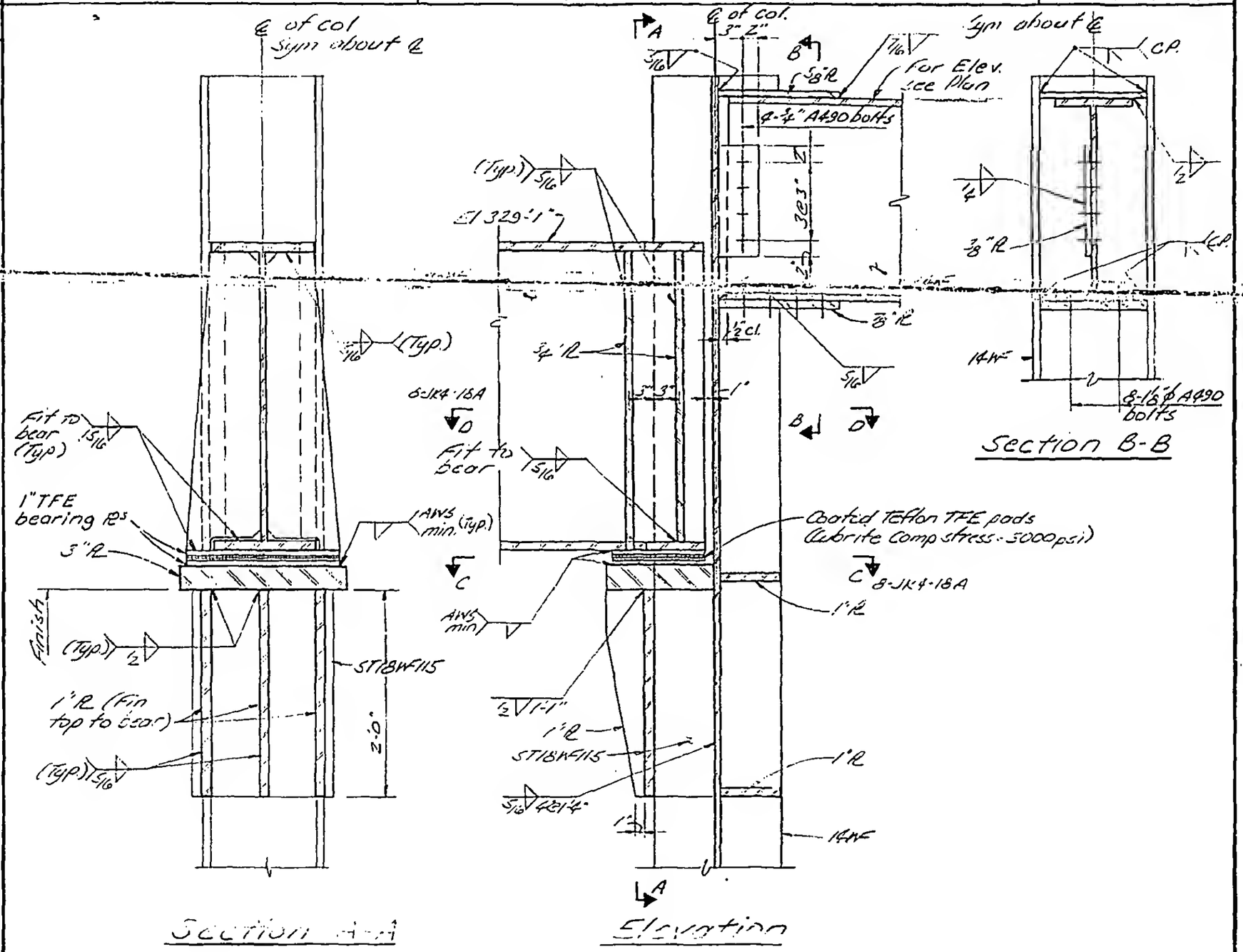
REVIEWED E.L.

12-JK4-17

SKILLING, HELLE, CHRISTIANSEN, ROBERTSON — Structural & Civil Engineers

PROJECT: THE WORLD TRADE CENTER | TITLE: CONNECTION DETAIL - EL 332' | DATE: 10-23-69

REVISIONS



Section A-A

Elevation

Section B-B

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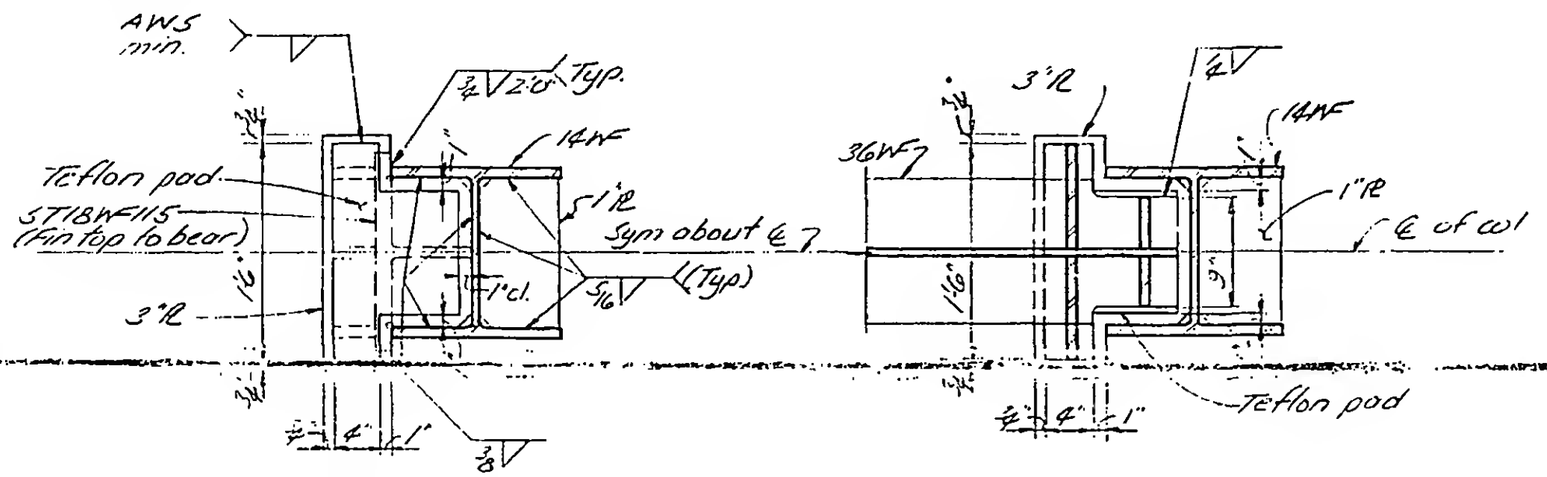
REVIEWED: E.L.

12-JK4-16

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PROJECT: THE WORLD TRADE CENTER | TITLE: CONNECTION DETAIL - EL 332' | DATE: 10-23-69

REVISIONS



Section C-C

Section D-D

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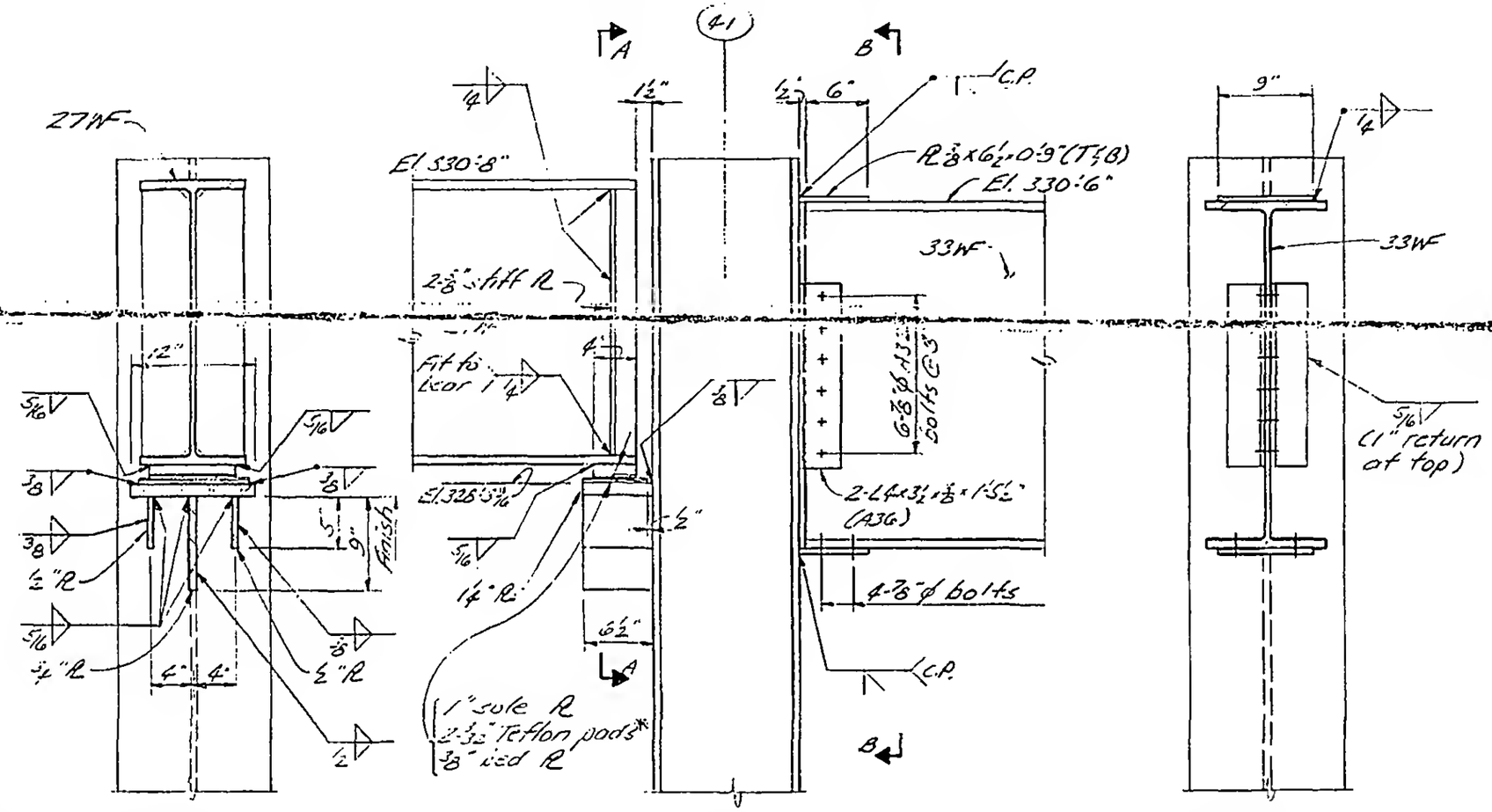
REVIEWED E.L.

12-JK4-18A

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PROJECT: THE WORLD TRADE CENTER | TITLE: CONNECTION DETAIL - EL. 332' | DATE: 10-23-69

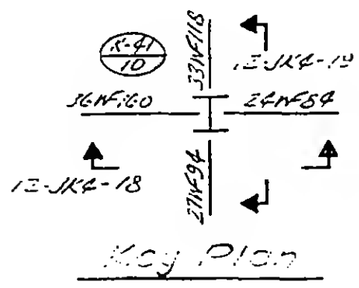
REVISIONS



Section A-A

Elevation
(Beams framed to web not shown)

Section B-B



Key Plan

* The bearing capacity of Teflon pads to have 2000 psi

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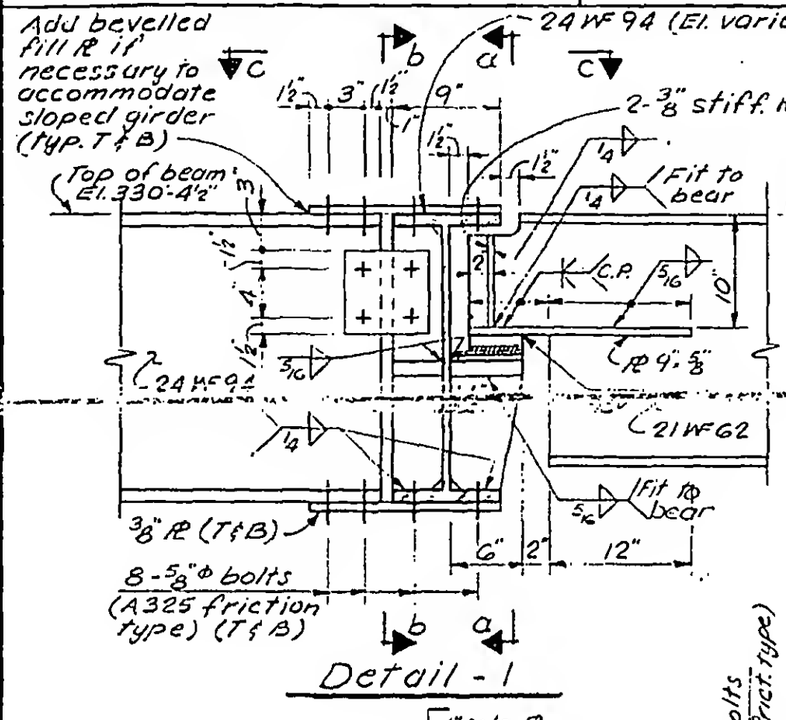
REVIEWED E.L.

12-JK4-19

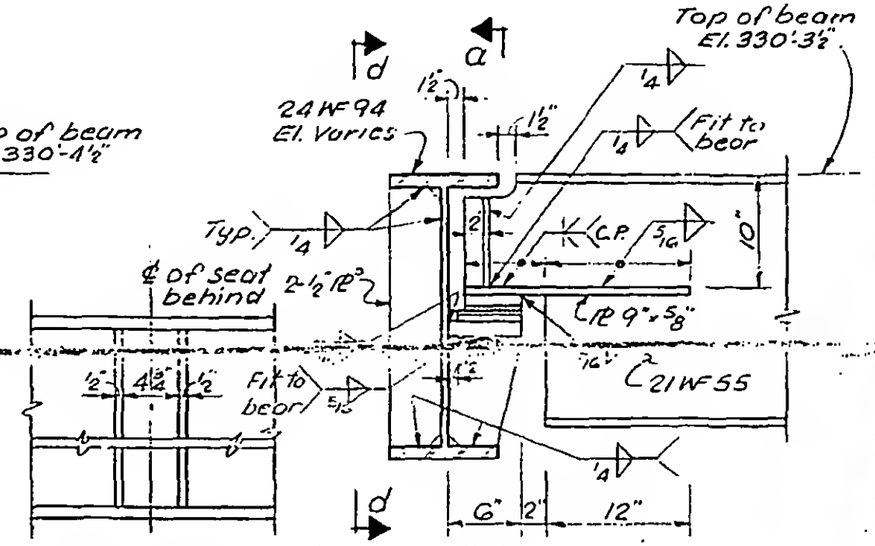
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PROJECT: THE WORLD TRADE CENTER | TITLE: BEAM CONNECTION DETAILS - El. 332' | DATE: 10-23-69

REVISIONS

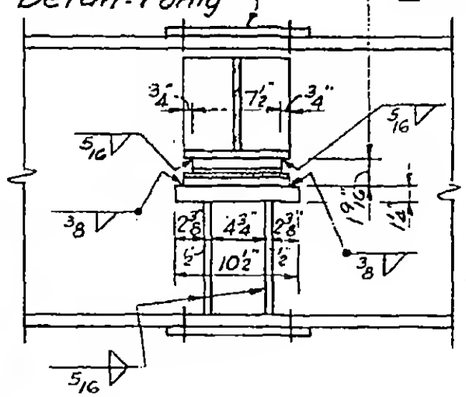


Detail - 1

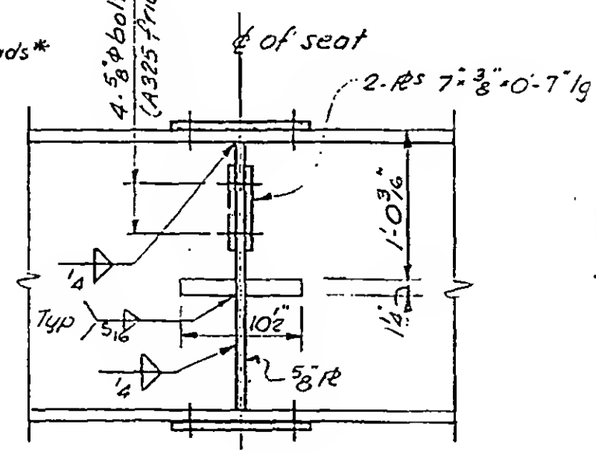


Section d-d

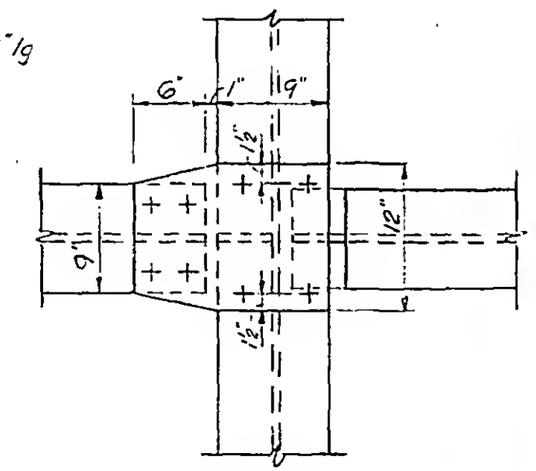
Detail - 2



Section a-a



Section b-b



Section c-c

*Teflon pads to have a bearing capacity of 2000 psi

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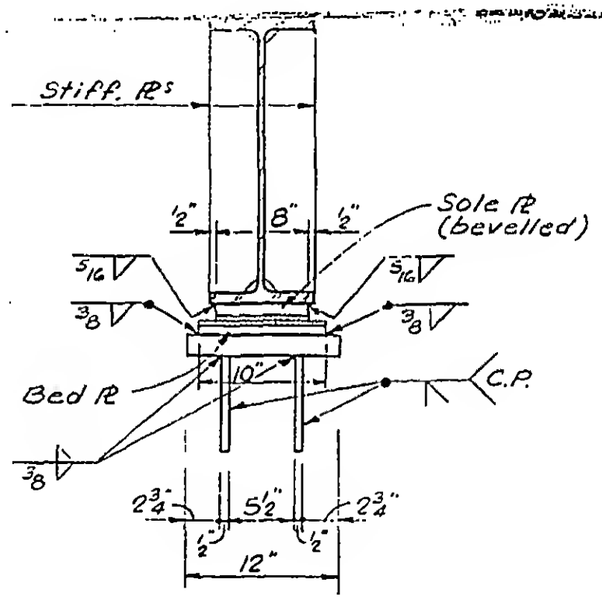
REVIEWED E.L.

12-JK4-20

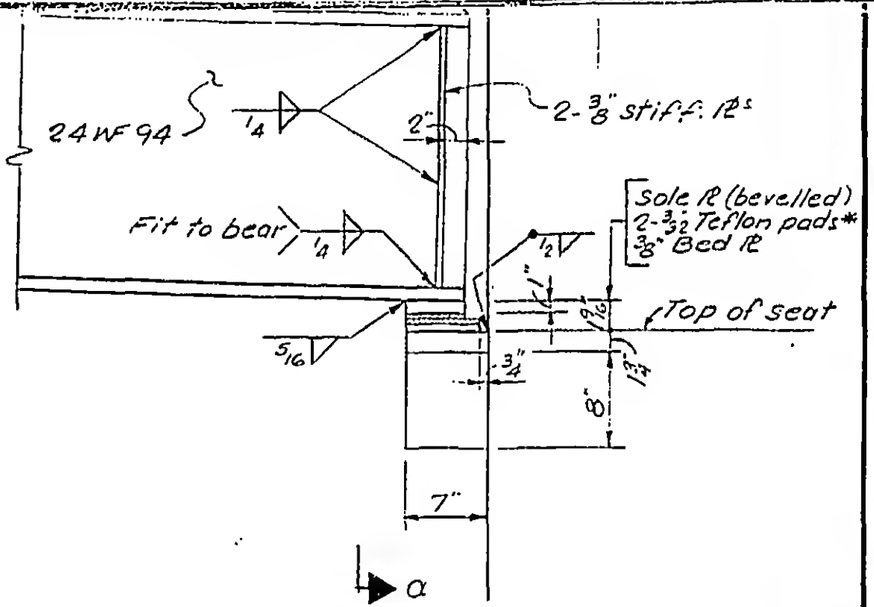
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PROJECT THE WORLD TRADE CENTER | TITLE BEAM CONNECTION DETAIL - El. 332' | DATE 10-23-69

REVISIONS



Section a-a



Elevation

* Teflon pads to have a bearing capacity of 2000 psi

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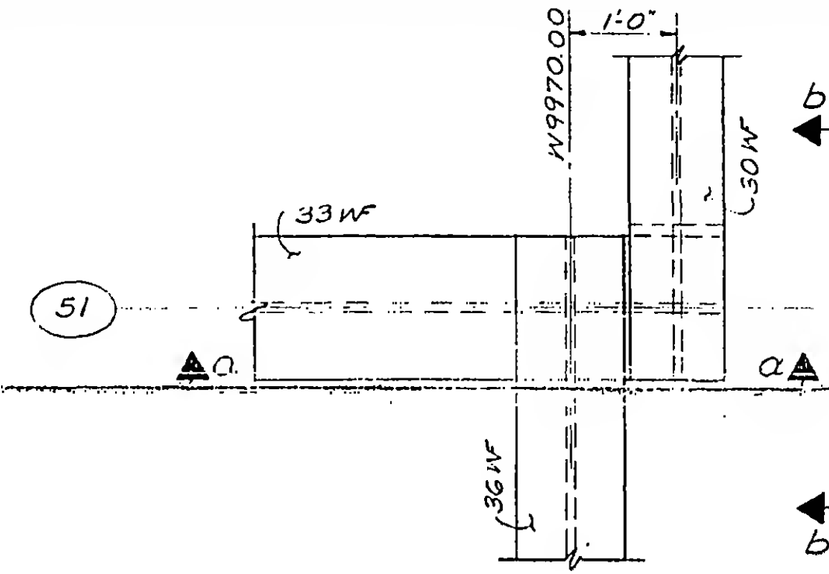
REVIEWED E.L.

12-JK4-21

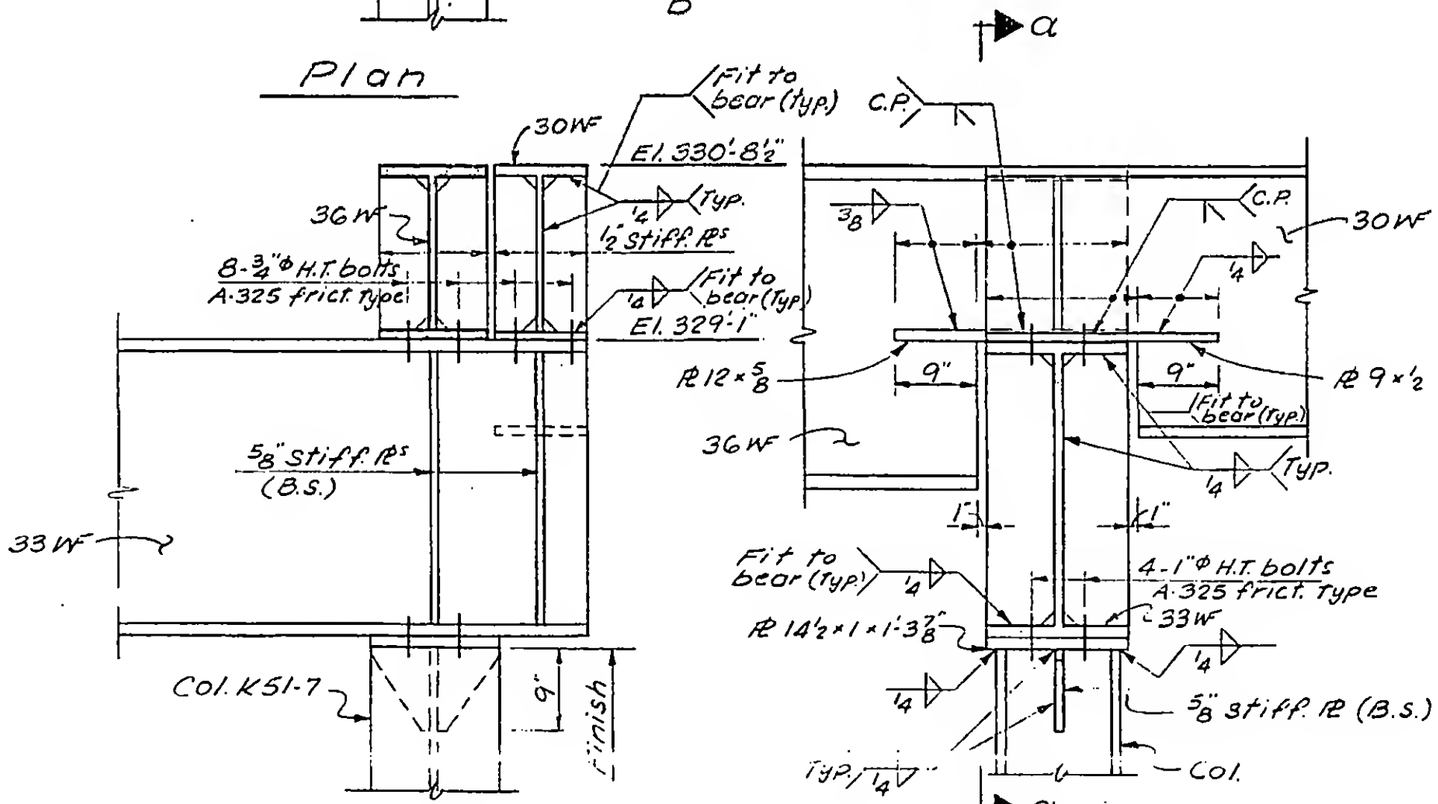
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PROJECT THE WORLD TRADE CENTER | TITLE CONNECTION DETAIL - El. 332' | DATE 10-23-69

REVISIONS



Plan



Section a-a

Section b-b

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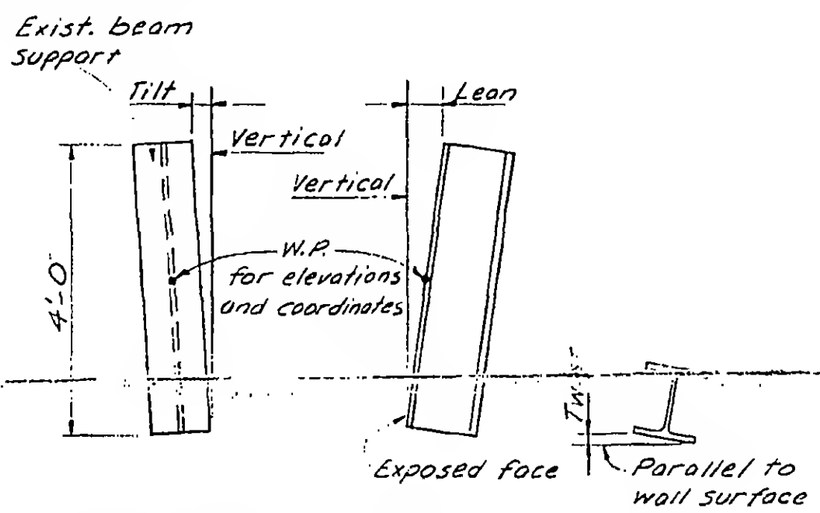
REVIEWED E.L.

12-JK4-22

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PROJECT THE WORLD TRADE CENTER | TITLE BEAM CONNECTIONS TO SLURRY WALL - NOTES | DATE 3-19-69

REVISIONS



BEAM SUPPORT DEVIATIONS

1. For beam support (12WF53) see PNYA Dwg F-J-6.
2. Deviations shown are positive; negative deviations are in opposite direction.
3. Deviations are scheduled on dwgs. 12-JK5-2 & -3.

NOTES

1. Beam support data scheduled on dwgs. 12-JK5-2 & 12-JK5-3 are taken from survey made by PONYA completed on 2-5-69. Elevations and coordinates are given to center of exposed flange at mid-height.
2. All structural steel to be Fy 36.
3. Welding electrodes to be E70xx.
4. Connecting steel angles to be bolted to beam with unfinished machine bolts. Provide horizontally slotted holes in beams and/or detail material to allow a tolerance of beam support location of ± ½".
5. Cut away concrete as necessary to insure workmanlike installation of connections and grout space between connection ∠ & wall with Embeco.
6. "Cinch Anchors" shown on detail 'A' shall be 4 units 4 units Threaded Ring wedge Cinch Anchors (Type 2) with 1½"ϕ bolts as manufactured by National Lead Company
7. Should reinforcing bars be encountered when drilling for cinch anchors, move plate B by not more than 2" to miss bars.
8. Where beam is not at a right angle to plate B, bend outstanding legs of angles A to lie flat against plate B.

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DESIGNED J.H.

DRAWN A.L. FRANQUI

REVIEWED E.L.

12-JK5-1

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PROJECT: THE WORLD TRADE CENTER | TITLE: BEAM CONNECTIONS TO SLURRY WALL-SCHEDULE I | DATE: 3-19-69

REVISIONS
3-31-69
4-18-69
5-29-69

FIELD CONNECTION DATA										BEAM SUPPORT DATA						
Conn. Det.	Steel Beam: Plan	Size	Elev.	Coord.	Detail Material: Angle A	R B	Weld C	Weld D	Dim E	PNYA Desig.	Coordinates: North	West	Center Elev.	Deviations (in.): Tilt	Lean	Twist
A1	SJ-45	24WF160	262'-9"	N4868±	2 JL 5x3x3/8x1'-4"	18x3/4	5/16	–	4	GX1	4867.85	9796.34				
A2		18WF85	262'-9"	N4862±	2 JL 5x3x3/8x0'-10"	18x3/4		–	4	GX2	4861.05	9794.87				
A3		18WF85	262'-9"	N4857±		18x3/4		–	4	GX3	4857.17	9793.97				
A4		18WF85	262'-9"	N4820±		18x3/4		–	4	GX4	4819.67	9784.84				
A5		18WF85	262'-9"	N4815±	2 JL 5x3x3/8x0'-10"	18x3/4		–	4	GX5	4815.85	9783.76				
A6	SJ-45	24WF160	262'-9"	N4809±	2 JL 5x3x3/8x1'-4"	18x3/4	5/16	–	4	GX6	4809.30	9781.54				
B1	SK-50	30x261	262'-9"	W9895.00	2 JL 5x3x3/8x2'-0"	20x1/2	5/8	3/4	3	L13E	4256.93	9895.64	260.98	0.06	0.12	0.20
										L13W	4257.14	9899.61	260.87	0.16	0.08	0
C1	SK-51	31x261	262'-9"	W9867.50	2 JL 5x5x5/8x2'-0"*	38x3/4	1/2	5/8	1/2	L12E	4256.31	9866.50	261.12	0.06	0	0
										L12W	4256.38	9870.63	261.10	0.10	0.06	0
D1	SJ-75	24WF76	289'-5"	W9974.50	2 JL 5x3x7/16x1'-4"	–	3/8	–	4	V21	5202.60	9974.48	288.06	0	0.06	0
D2		21WF55	289'-5"	W9960.00	2 JL 5x3x7/16x1'-2"	–	3/8	–	3 1/2	V22W	5201.78	9960.05	288.50	0	0	0
D3		21WF55	289'-5"	W9952.75	2 JL 5x3x7/16x1'-2"	–	3/8	–	3 1/2	V22E	5201.27	9952.70	288.52	0	0.08	0
E1		30WF99	289'-5"	W9940.00	L 5x5x7/16x2'-0"	–	3/8	–	3	V23	5200.49	9940.38	288.46	0	0.08	0
E2		30WF99	289'-5"	W9900.00	L 5x5x7/16x2'-0"	–	3/8	–	3	V25	5199.31	9900.47	287.38	-0.12	0.10	0
H		27WF94	288'-1"	W9870.00	2 JL 5x3x7/16x1'-10"	–	–	–	–	V26	5197.95	9870.90	287.17	0.06	0.04	0
F1		16WF40	288'-1"	W9863.33	See 12-JK5-9											
F2		21WF55	289'-7½"	W9855.67	See 12-JK5-9											
D5		16B31	289'-5"	N5194.00	2 JL 5x3x7/16x1'-0"	–	3/8	–	2	G1N	5194.01	9840.62	287.88	-0.22	0.08	0
D6		16B31	289'-5"	N5186.00	2 JL 5x3x7/16x1'-0"	–	3/8	–	2	G1S	5185.84	9840.52	287.84	0.44	-0.06	0
D7		14B22	289'-5"	N5177.50	2 JL 5x3x7/16x0'-9"	–	3/8	–	2 1/2	G2	5177.48	9840.32	287.86	-0.12	0.06	0
C2		33WF152	288'-6"	N5147.50	2 JL 5x3x7/16x2'-2"	28x3/4	3/8	5/8	1/2	G3N(Top)	5150.83	9840.74	287.78	-0.08	0.06	0
										G3S(Top)	5146.88	9840.77	287.86	0	0	0
C3		33WF152	288'-6"	N5117.50	2 JL 5x3x7/16x2'-2"	28x3/4	3/8	5/8	1/2	G4S(Top)	5121.50	9840.77	288.12	0.16	0.04	0
										G5	5116.80	9840.78	288.08	-0.12	0	0
C4		33WF152	288'-6"	N5087.50	2 JL 5x3x7/16x2'-2"	26x7/8	3/8	3/8	1/2	G6N	5089.63	9840.47	287.49	0.04	0	0
										G6S	5085.63	9840.40	288.10	0	0.04	0.20
C5	SJ-75	33WF240	288'-6"	N5057.50	2 JL 5x5x5/8x2'-0"*	28x1 3/8	1/2	5/8	1/2	G7	5060.72	9840.54	287.96	0.14	-0.10	0
										G8	5054.94	9839.37	288.05	-0.30	0	0

1. * — Slot Ls per 12-JK5-6
2. See notes on 12-JK5-1
3. See details on 12-JK5-4 thru 11.

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DRAWN: A.L. FRANQUI
REVIEWED: E.L.

12-JK5-2

1042-4,3